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WESTERN WATER BULLETIN 1985

Flow of
The Colorado River
and other
Western Boundary Streams
and
Related Data

COLORADO RIVER

TIJUANA RIVER

SANTA CRUZ RIVER

SAN PEDRO RIVER

WHITEWATER DRAW

1985

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FOREWORD

This bulletin is the twenty-sixth annual compilation of stream discharges and other hydrographic data relating to international aspects of the Colorado River below Imperial Dam, the Tijuana River, and other streams crossing the western land boundary of the United States and Mexico. The compilation was prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission, solely for the purpose of presenting statistical data relating to stream flow and kindred subjects for the Colorado River from Imperial Dam to the Gulf of California, the Tijuana River and its important tributaries in the United States and Mexico, and other streams, including the Alamo and New Rivers which cross the California-Baja California boundary, and the Santa Cruz River and Whitewater Draw which cross the Arizona-Sonora boundary. This bulletin contains information for the year 1985.

Stream gaging on the Colorado River below Imperial Dam began in 1902 when the station at Yuma, Arizona was established. Stage records were obtained at this station from January 1878 until December 1973, when it was discontinued. Continuous stream gaging on the Tijuana River and its important tributaries in the United States and in Mexico began in 1936. Each government operates the gaging stations located within its own country.

COLORADO RIVER BELOW IMPERIAL DAM

Below Imperial Dam, the Colorado River flows southward 10 miles to the mouth of the Gila River, thence westward 11 miles to Pilot Knob Mountain, and south 1 mile to the point where the northerly international land boundary, between California and Baja California, intersects the river. From this point the river continues to flow southward and forms the boundary between the United States and Mexico for a distance of about 22 miles to the point where the southerly international land boundary between Arizona and Sonora intersects the river. From this point the river continues to flow southward about 90 miles to discharge into the Gulf of California.

The ordinary flows of Colorado River below Imperial Dam are largely controlled by releases at Hoover Dam, completed in 1935. The releases are further regulated at Davis Dam, completed in 1950, and by Parker and Imperial Dams, completed in 1938. Small amounts of runoff may occasionally be contributed to the flow in the lower river from the usually dry arroyos draining the 10,900 square miles along the river from Hoover Dam to the mouth of the Gila River. In addition, flows ranging from usually minor amounts to infrequent torrential floods may enter the lower Colorado River from the Bill Williams River, draining about 717 square miles below Alamo Dam and Lake, completed in 1963; and from the Gila River, draining about 7,300 square miles below Painted Rock Dam and Reservoir, completed in January 1960.

At Imperial Dam, diversions are made to Gila Gravity Main Canal and All-American Canal for irrigation projects in Arizona, including the Yuma Valley, Gila and Wellton-Mohawk projects; and in California, including the Imperial Valley, Coachella Valley and Reservation Division of Yuma Project. Also, under the provisions of the 1944 Water Treaty, there may be diverted to the All-American Canal at Imperial Dam for delivery to Mexico in the Alamo Canal, or substitute canal, at the northerly boundary, a portion of Mexico's scheduled deliveries of waters of the Colorado River, which in 1985 amounted to 1,700,000 acre-feet, in accordance with Article 10 of the 1944 Water Treaty. No diversions were made to a substitute canal in 1985.

Below Laguna Dam, measured and unmeasured flows are returned to the river principally as waste and drainage water from the irrigation projects in the United States. Waste and drainage waters from irrigation projects in the United States also cross the boundary into Mexico near San Luis, Arizona without returning to the river in the United States.

In the limitrophe section of the river, 1.1 miles downstream from the northerly boundary, Morelos Dam, the principal diversion structure for Mexico, was completed and placed in operation on November 8, 1950. Since that date almost all the Colorado River flows that cross the northerly boundary (except emergency deliveries to Tijuana from August 1972 to August 1980) have been diverted to the Alamo Canal at Morelos Dam.

TIJUANA RIVER BASIN

The total drainage area of the Tijuana River basin is 1,731 square miles, of which 27 percent lies in the United States and 73 percent in Mexico. This river is formed by the principal tributaries, Cottonwood Creek, which rises in the United States and Rio de las Palmas, which rises in Mexico. Cottonwood Creek crosses the international land boundary 21 miles from the Pacific Ocean to join the Rio de las Palmas in Mexico. From the confluence of these tributaries, the Tijuana River flows northwesterly 5 miles to cross the land boundary into the United States near San Ysidro, California and Tijuana, Baja California, and then flows westerly 6 miles to discharge into the Pacific Ocean 2 miles north of the boundary. The flow of Cottonwood Creek is partially controlled by Barrett and Morena Reservoirs in the United States, and the flow of the Rio de las Palmas is partially controlled by Rodriguez Reservoir in Mexico.

WHITewater DRAW NEAR DOUGLAS, ARIZONA

Whitewater Draw rises in the United States and flows south into Mexico, crossing the international boundary near Douglas, Arizona, eventually discharging into the Gulf of California through the Yaqui River in Mexico. The total drainage area above the Douglas Gaging Station is 1,023 square miles. A number of mountain streams in the upper reaches of the basin are diverted for irrigation, but they would normally sink or go to ground water before reaching the main water course.

FOREWORD

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

The San Pedro River rises in Mexico and flows north into the United States, crossing the boundary near Palominas, Arizona and thence northwesterly into the Gila River. The river in the vicinity of the international boundary drains an area of 741 square miles, of which 649 square miles are in Mexico.

SANTA CRUZ RIVER NEAR NOGALES AND LOCHIEL, ARIZONA

The Santa Cruz River rises in the United States and flows south into Mexico, crossing the international boundary near Lochiel, Arizona and returning to the United States near Nogales, Arizona, eventually discharging into the Gila River southwest of Phoenix, Arizona. The drainage area of the Santa Cruz River above Nogales station is 533 square miles. Of this amount, 348 square miles lie in Mexico. There are a few ground water irrigation diversions above the Lochiel station in Arizona and an unknown amount of water diverted for irrigation in Mexico.

ACKNOWLEDGMENTS

Other agencies which have contributed to the data published herein include the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the National Weather Service, Department of Commerce; the Yuma County Water Users' Association; the Imperial Irrigation District; the city of San Diego, California; the Otay Municipal Water District; and the Ministry of Agriculture and Hydraulic Resources of Mexico. Specific notation is made of each of the above named agencies, where the data appear. The courtesy and cooperation of those who have made these contributions are acknowledged with appreciation.

UNITS OF MEASURE

Data collected by the Mexican Section are computed and published in a Spanish version of the water bulletin in metric units. The Mexican data are converted and reported in this bulletin in English units. Conversion factors conform generally to those in the National Bureau of Standards Miscellaneous Publication 286 "Units of Weight and Measure (United States Customary and Metric) - Definitions and Tables of Equivalents." However, for convenience some of the factors have been shortened and modified to facilitate conversion, reconversion to the original units when necessary, and checking of data. Conversion of the mean daily discharges, the monthly average discharge, and the monthly and annual volumes from metric to English units is direct. For this reason the monthly average discharge in cubic feet per second and monthly volumes in acre-feet shown for gaging stations operated by the Mexican Section cannot necessarily be obtained in the usual manner from the total monthly flow in second-foot days. For the same reason, evaporation and rainfall data, when totaled, may not be equivalent to the direct conversion from metric to English units. The following factors have been used for data in this bulletin:

METRIC UNITSENGLISH UNITSLENGTHS

1 Centimeter	0.39370 Inch
1 Meter	3.28084 Feet
1 Kilometer	0.62137 Mile

AREAS

1 Square Meter	10.76391 Square Feet
1 Hectare	2.47105 Acres
1 Square Kilometer	0.38610 Square Mile

VOLUMES

1 Cubic Meter	61023.74 Cubic Inches
1 Cubic Meter	35.31467 Cubic Feet
1 Cubic Meter	1.30795 Cubic Yards
1000 Cubic Meters	0.81071 Acre-Feet
1 Liter	0.26417 U.S. Gallon

WEIGHTS

1 Kilogram	2.20462 Pounds
1 Metric Ton	2204.623 Pounds
1 Metric Ton	1.10231 Short Tons (2,000 lbs.)

Both English and metric units are used to report the figures in the descriptive headings and for the yearly figures of the annual and period summaries of all gaging station pages. The yearly figures for the summaries are obtained by direct conversion from English to metric system of units, except for those stations operated by the Mexican Section, where the figures furnished in the metric system of units are used.

GENERAL HYDROLOGIC CONDITIONS FOR 1985

COLORADO RIVER

Normally, there is no measurable amount of runoff from the portion of the Colorado River basin in the United States and Mexico below Hoover Dam, not including Bill Williams and Gila Rivers. There was no significant amount in 1985. In the lower basin of the Colorado River in Mexico, from Morelos Diversion Dam to the Gulf of California, the average precipitation during 1985 measured at 5 index stations was 1.65 inches, compared to an average of 2.91 inches during the last 27 years (1959 to 1985).

The flow of the Colorado River reaching Imperial Dam was 14,961,700 acre-feet, about 178% of the 51-year average (1935-1985) of 8,396,953 acre-feet. At the northerly international boundary, the total flow of the river during 1985 was 11,699,504 acre-feet, about 288% of the 1935-1985 average of 4,060,615 acre-feet. At the southerly international boundary, the flow during 1985 was 9,212,667 acre-feet, or about 309% of the 1935-1985 average of 2,982,023 acre-feet.

The total of all flows of the Colorado River entering Mexico in 1985 amounted to 11,942,028 acre-feet, 260% of the 1935-1985 average of 4,599,548 acre-feet, as measured 1) in the Colorado River at the northerly international boundary, 2) in the Wellton-Mohawk Main Outlet Drain Extension near Morelos Dam, 3) in the wasteways that discharge into the limitrophe section of the river from the United States bank, 4) in the canal which discharges waste and drainage waters from the Yuma Project across the southerly land boundary into Mexico near San Luis, Arizona, 5) in the Wellton-Mohawk Bypass Drain at the southerly land boundary near San Luis, Arizona, and 6) the 242 Well Field near San Luis, Arizona.

During 1985, other waters arrived at the Mexican points of diversion and amounted to 10,112,000 acre-feet. These waters consisted mainly of excess waters released from reservoirs on the Colorado River. A maximum instantaneous flow of 27,100 second-feet occurred in the Colorado River at the northerly boundary station on February 6.

Stored waters at the end of the year in the three major reservoirs on the Colorado River below Lee's Ferry amounted to 26,554,500 acre-feet, 93% of the usable capacity of 28,588,400 acre-feet. The greater part (24,344,000 acre-feet) of the storage was contained in Lake Mead (Hoover Dam). There were no reported shortages of Colorado River water for irrigation during 1985 due to drought or accident to the irrigation system.

The total reported acreage irrigated from waters of the Colorado River below Imperial Dam in 1985 was 1,217,360 acres; 690,816 acres in the United States and 526,544 acres in Mexico. An estimated 33% of acreage in Mexico is served by pumping from ground water.

The suspended sediment load passing the northerly boundary station in 1985 was 3,651 acre-feet, about 60% of the 1956-1985 average of 604 acre-feet.

TIJUANA RIVER BASIN

During 1985, the temperatures at Barrett Dam, California (elevation 1,750 feet) in the upper portion of the basin in the United States averaged 61.9 degrees, 0.5 degree above the 55-year mean. In the extreme upper portion of the basin in Mexico at El Pinal, Baja California (elevation 4,429 feet), the recorded temperatures during the year averaged 52 degrees, 4 degrees below the long-term average; and at Rodriguez Dam, Baja California (elevation 459 feet), the recorded temperatures averaged 64 degrees, 2 degrees above the normal for many years.

At Barrett Dam in the upper portion of the basin in the United States, the recorded precipitation was 14.89 inches, 84% of normal; and at Chula Vista near the lower end of the basin, 12.17 inches, or 124% of normal. The recorded precipitation at El Pinal in the upper portion of the basin in Mexico, was 19.33 inches, approximately 93% of the normal during the 22-year period; and at Rodriguez Dam in the lower portion of the basin in Mexico, 8.43 inches, 96% of the 48-year average.

Runoff above Barrett and Rodriguez Reservoirs during 1985 averaged more than 36% of normal. Above Morena Reservoir the runoff was 5,774 acre-feet, or about 53% of the 49-year 1937-1985 mean of 10,965 acre-feet. Above Barrett Reservoir the runoff was 6,860 acre-feet, or about 54% of the 49-year 1937-1985 mean of 12,666 acre-feet. At Rodriguez Reservoir, the runoff was 6,473 acre-feet, or about 26% of the 48-year mean of 24,454 acre-feet.

The flow of the Tijuana River at the international boundary was 13,318 acre-feet during 1985.

WHITEWATER DRAW

During 1985, the average annual temperature over the watershed was 0.1 degree above normal, while the annual precipitation was 123% of normal. Runoff for the year at the gaging station near Douglas, Arizona, of 5,104 acre-feet, was about 82% of average.

GENERAL HYDROLOGIC CONDITIONS FOR 1985

SAN PEDRO RIVER

During 1985, the average annual temperature was 0.4 degree below normal. The annual precipitation, as measured at Coronado National Monument Headquarters, was 136% of the 1961-1985 mean of 20.90 inches. The stream flow at the international boundary was 27,381 acre-feet, 115% of the 1951-1985 normal.

SANTA CRUZ RIVER

During 1985, the average annual temperature over the watershed was somewhat above normal, and the annual precipitation was about 124% of the 47-year 1939-1985 mean. Runoff measured at the Nogales gaging station, where the stream re-enters the United States, was 62,358 acre-feet. The total runoff for the year measured at the gaging station near Lochiel, Arizona, where the stream enters Mexico from the United States, was 4,797 acre-feet. Therefore, neglecting stream flow depletions in Mexico, the records indicate a contribution of about 57,561 acre-feet from the loop of the river lying in Mexico, or approximately 92% of the flow reaching the Nogales station.

ALAMO AND NEW RIVERS

During 1985, the average annual temperature over the drainage areas of the Alamo and New Rivers, as recorded at El Centro, California, was 72.4 degrees, 0.2 degree above normal; and over the drainage area of the New River, as recorded at Mexicali, Baja California, it was 70 degrees, 2 degrees below the 60-year average.

At El Centro, the precipitation was 4.72 inches, about 174% of the 55-year average; and in Mexicali, the annual precipitation was 3.11 inches, 98% of the 60-year average. The total flow of the New River at the international boundary in 1985 was 260,237 acre-feet, which was about 261% of the 1943-1985 average.

SALTON SEA

During 1985, the average annual temperature around the Salton Sea was 0.2 degree below the long-term average, while the annual precipitation recorded at Brawley, California was approximately 114% of the long-term mean of 2.70 inches. The water surface of the Salton Sea remained more or less the same during the year. The maximum stage, 226.9 feet below mean sea level, was recorded on April 10 through May 28, 1985, inclusive. The minimum stage, 228.1 feet below mean sea level, was recorded on November 19-24, 1985, inclusive.

RESERVATION MAIN DRAIN NO. 4 (CALIFORNIA DRAIN)

DESCRIPTION: Water-stage recorder (digital) located 500 feet (152 m) upstream from railroad culvert and one mile (1.6 km) northwest of Yuma, Arizona. Discharge measurements are made from a footbridge immediately below the gage. The drainage canal discharges into the outfall channel of the Yuma Main Canal Wasteway 200 feet (61.0 m) downstream from the spillway structure, and thence into the Colorado River on the right bank, 1,000 feet (305 m) upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles (10.5 km) upstream from the northerly international boundary. Prior to October 1955, published as "California Drainage Canal near Yuma, Arizona."

RECORDS: Based on current meter measurements and a continuous record of gage heights. Records are computed and furnished by the U. S. Geological Survey. Records available: Monthly discharge, January 1913 to April 1920, October 1921 to March 1925, and January 1934 to September 1947; daily and monthly discharge, October 1947 through 1985.

REMARKS: Reservation Main Drain No. 4 collects drainage and wastewater from the area east of the Yuma Main Canal on the Reservation Division of the Yuma Project, located in California. Since 1939, collection of seepage from the All-American Canal has caused large increases in drainage flows. Average annual flow prior to 1937 was 12,800 acre-feet (15,789,000 m³). Monthly and annual averages since 1937 are shown in the table below.

EXTREMES: Prior to 1937: Maximum annual flow 20,190 acre-feet (24,904,000 m³), 1916; minimum annual flow 8,920 acre-feet (11,003,000 m³), 1913.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	44	56	64	64	72	62	65	62	78	71	83	100
2	46	44	56	66	76	65	64	64	76	71	85	109
3	46	32	56	74	87	72	63	58	63	75	88	100
4	45	24	46	65	78	66	67	64	70	67	88	102
5	46	28	50	60	78	69	68	57	87	67	94	94
6	45	35	59	65	79	66	67	46	78	73	94	76
7	48	38	52	72	94	76	73	48	76	60	102	56
8	55	43	50	87	61	71	75	51	72	58	108	53
9	55	47	56	97	24	69	62	48	69	66	99	78
10	55	52	58	105	28	77	69	48	70	90	97	79
11	71	47	70	112	30	67	65	58	66	86	69	54
12	57	47	89	122	40	66	59	57	70	84	58	73
13	55	53	92	121	30	76	68	46	72	87	97	70
14	54	49	89	103	26	70	74	46	72	93	85	57
15	56	52	93	101	24	72	67	45	69	90	88	65
16	62	52	71	94	30	74	69	43	66	90	88	74
17	64	60	72	86	34	74	64	42	67	86	92	56
18	62	60	64	73	35	82	67	58	74	80	99	52
19	64	59	67	64	36	67	74	52	80	83	92	54
20	65	59	70	58	35	66	69	51	68	93	72	69
21	64	57	68	53	38	63	76	56	68	98	66	69
22	63	46	73	51	41	63	73	50	70	102	64	80
23	75	52	69	52	37	71	65	56	70	106	61	67
24	70	54	68	51	40	70	68	57	72	105	63	67
25	66	54	86	52	45	59	69	61	72	97	55	81
26	73	67	88	49	48	65	69	65	66	97	59	84
27	74	69	90	48	49	71	66	67	78	105	69	84
28	66	60	93	58	49	67	68	66	82	94	98	77
29	74	98	59	54	66	69	71	73	84	89	95	95
30	77	94	61	54	54	71	64	72	84	87	96	66
31	76	71		60	60		65	77		82		54
Sum	1,873	1,396	2,222	2,223	1,512	2,073	2,111	1,742	2,178	2,627	2,498	2,295
Current Year 1985									Period 1937-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			30	77	1	44	60.4	3,715	3,172	4,780	877	
Feb.			27	69	4	24	49.9	2,769	2,975	4,320	563	
Mar.			29	98	4	46	71.7	4,407	3,682	5,240	1,240	
Apr.			12	122	27	48	74.1	4,409	3,691	5,250	1,160	
May			7	94	1	9	48.8	2,999	3,793	5,590	992	
June			18	82	25	59	69.1	4,112	3,672	5,580	885	
July			21	76	9	62	68.1	4,187	3,925	6,550	816	
Aug.			31	77	17	42	56.2	3,455	3,922	6,810	861	
Sept.			5	87	3	63	72.6	4,320	3,725	6,220	889	
Oct.			23	106	8	58	84.7	5,211	3,778	5,740	1,040	
Nov.			8	108	25	55	83.3	4,955	3,503	5,490	994	
Dec.			2	109	18	52	74.0	4,552	3,381	4,960	966	
				122		24	67.8	49,091	43,219	63,700	12,840	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				3.46		0.68	1.92	60,553	53,310	78,573	15,838	

§ Mean daily

! And other days

YUMA MAIN CANAL WASTEWAY TO COLORADO RIVER AT YUMA, ARIZONA

DESCRIPTION: The wasteway receives water from the Yuma Main Canal at the check structure on the canal, 1,645 feet (501 m) upstream from the intake of the Colorado River siphon, and 3.2 miles (5.1 km) downstream from the Siphon Drop Power Plant. This wasteway discharges into the Colorado River on the California side, 1,000 feet (305 m) upstream from Colorado River below Yuma Main Canal Wasteway, and 6.5 miles (10.5 km) upstream from the northerly international land boundary.

RECORDS: Discharge is computed as the difference between the measured discharge of the Yuma Main Canal at the Siphon Drop Power Plant upstream and that of the same canal below the Colorado River siphon, with deductions for small irrigation diversions from the canal between the two gaging stations. Records obtained and furnished by U. S. Geological Survey. Records available: April 1913 through 1985.

REMARKS: The wasteway discharges to the river the flow in excess of irrigation water in the Yuma Main Canal.

EXTREMES: Prior to 1935, when storage began in Lake Mead: Average annual flow, 297,800 acre-feet (367,333,000 m³); maximum annual flow, 913,700 acre-feet (1,127,040,000 m³), 1932; minimum annual flow, 114,900 acre-feet (141,728,000 m³), 1917. Since 1935: Maximum mean daily discharge, 2,020 second-feet (57.2 m³/sec), December 24-25, 1948; minimum mean daily discharge, no flow on numerous occasions.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.0	8.3	7.9	9.8	8.9	8.0	18	9.2	15	15	15	12
2	6.0	7.9	7.6	9.2	12	7.7	9.7	12	13	18	13	12
3	6.0	16	10	12	11	8.3	9.4	13	13	23	13	12
4	9.2	8.3	10	9.2	12	11	9.2	12	13	14	12	12
5	6.0	8.4	7.7	8.0	17	10	9.5	11	18	14	14	12
6	9.4	8.2	7.6	7.7	7.7	7.7	9.8	12	14	14	12	12
7	9.3	8.4	6.8	8.0	13	10	12	10	12	14	19	12
8	8.4	8.2	7.1	9.6	6.9	11	9.9	9.4	12	14	23	136
9	8.8	8.6	7.2	8.4	8.1	9.8	10	10	14	16	14	45
10	8.6	23	18	8.4	6.8	8.6	9.4	9.5	12	17	12	15
11	480	13	7.7	8.0	8.5	7.2	9.6	18	18	14	16	15
12	8.9	9.2	7.2	7.7	13	6.8	9.5	13	17	13	12	12
13	8.4	8.4	7.7	9.5	6.8	6.8	22	16	13	13	12	13
14	8.4	8.2	7.7	8.0	6.8	6.8	17	14	27	12	11	9.3
15	8.4	7.8	7.7	7.7	6.8	8.0	10	13	26	12	11	8.6
16	8.5	7.7	7.7	7.7	6.1	6.9	10	9.4	14	11	18	12
17	8.4	7.7	8.0	9.3	6.3	16	10	10	14	23	13	12
18	8.4	8.2	7.9	11	6.8	440	9.7	10	27	31	13	12
19	8.7	8.4	7.7	6.7	14	9.0	14	9.6	16	14	12	12
20	8.7	8.4	7.7	6.8	9.4	8.9	12	9.2	20	14	12	12
21	8.6	8.0	7.7	6.8	7.2	21	9.8	9.2	18	14	12	12
22	8.4	8.1	7.1	6.8	7.0	11	9.8	9.1	21	14	12	11
23	8.4	8.4	6.8	6.7	6.7	11	9.7	15	19	13	12	11
24	8.4	8.4	6.8	7.2	6.7	11	11	16	20	13	14	14
25	11	8.3	7.7	7.8	6.6	13	9.4	13	16	14	13	21
26	9.1	8.4	7.7	8.5	7.6	11	9.4	18	13	14	17	12
27	9.5	8.1	7.7	8.3	7.6	9.8	12	18	24	13	13	12
28	9.8	7.7	7.7	8.2	11	9.6	11	14	28	13	20	12
29	9.2		8.5	7.7	8.5	9.2	9.2	15	18	13	19	12
30	9.2		11	7.7	7.6	9.2	9.2	18	13	13	13	12
31	8.6		9.8		7.7		9.2	16		14		12
Sum	734.7	257.7	255.4	248.4	272.1	724.3	340.4	391.6	518	464	422	538.9
Current Year 1985									Period 1935-1985			
Month	Extreme Gage Feet		# Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			11	480	11	6.0	23.7	1,457	47,427	110,700	446	
Feb.			10	23	116	7.7	9.2	511	41,620	89,140	360	
Mar.			10	18	17	6.8	8.2	507	41,156	90,190	357	
Apr.			3	12	119	6.7	8.3	493	41,628	86,580	326	
May			5	17	16	6.1	8.8	540	49,838	88,280	333	
June			18	440	112	6.8	24.1	1,437	43,576	86,960	342	
July			13	22	14	9.2	11.0	675	40,724	91,220	369	
Aug.			11	18	22	9.1	12.6	777	41,292	89,890	369	
Sept.			28	28	17	12	17.3	1,027	45,218	83,660	357	
Oct.			18	31	16	11	15.0	920	41,890	90,050	567	
Nov.			8	23	114	11	14.1	837	41,933	101,500	837	
Dec.			8	136	15	8.6	17.4	1,069	46,100	108,800	462	
Yearly				480		6.0	14.2	10,250	522,402	1,042,850	6,669	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				13.6		0.17	0.40	12,643	644,372	1,286,345	8,226	

* Mean daily

1 And other days

COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY AT YUMA, ARIZONA - DISCHARGES

DESCRIPTION: Water-stage recorder located in California on the right bank of the river, 1,000 feet (305 m) downstream from the mouth of the Yuma Main Canal Wasteway, 0.6 mile (1.0 km) downstream from the abandoned gaging station on the Colorado River at Yuma, 5.2 miles (8.4 km) downstream from the mouth of the Gila River, 19.6 miles (31.5 km) downstream from Imperial Dam, and 6.4 miles (10.3 km) upstream from the northerly international boundary. Zero of the gage is 101.99 feet (31.09 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Computations by shifting control methods. Records obtained and furnished by U. S. Geological Survey. Records available: October 1963 through 1985. Records from January 1951 through September 1963 deduced from "Colorado River at Yuma" plus flows from "Reservation Main Drain No. 4" and "Yuma Main Canal Wasteway."

REMARKS: Reservoirs on the Colorado River, power developments, transmountain diversions, reservoirs on the Gila River, irrigation diversions, and return flows modify the river flow at this station.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15,800	14,700	14,800	8,350	7,490	9,680	9,500	9,870	11,200	9,790	3,260	6,540
2	15,800	15,400	14,900	8,310	7,240	10,200	9,560	9,910	11,200	9,440	3,270	5,930
3	16,100	17,100	15,100	8,310	6,890	10,100	9,420	9,780	10,900	8,470	3,210	5,070
4	15,900	18,900	15,200	8,310	7,030	9,710	9,530	10,000	10,800	7,450	3,250	4,400
5	15,800	19,400	15,000	8,460	7,110	9,620	9,710	9,860	10,600	6,940	3,160	3,070
6	15,500	19,700	14,700	8,460	7,100	9,510	9,570	9,730	10,400	7,030	3,270	2,700
7	15,200	19,500	14,300	7,820	6,610	9,690	9,690	9,970	10,000	6,750	3,060	3,460
8	15,200	19,100	13,700	7,130	6,620	9,620	9,730	10,100	10,200	6,650	2,790	4,170
9	15,300	18,700	13,000	7,090	6,630	9,560	9,480	9,970	10,500	6,190	3,100	5,390
10	15,400	18,000	12,600	6,830	6,500	9,520	9,540	9,970	10,400	5,500	3,190	5,180
11	15,700	17,300	11,600	6,550	6,470	9,120	9,470	9,990	10,200	5,670	3,500	4,740
12	15,800	16,800	10,900	6,350	6,780	9,230	9,520	10,000	10,100	4,760	5,300	5,820
13	15,700	16,600	10,700	6,380	6,930	9,490	9,730	9,960	9,710	4,760	6,210	5,670
14	15,500	16,200	10,700	6,580	6,800	9,310	9,940	9,880	9,190	4,190	4,020	5,530
15	15,300	15,900	10,900	6,580	6,590	9,410	9,760	10,100	9,190	3,920	3,750	6,100
16	15,200	15,700	11,100	6,590	6,820	9,560	9,840	9,990	8,770	3,760	3,720	6,320
17	15,200	15,300	11,400	6,840	7,390	9,590	9,720	9,990	8,480	3,970	3,950	5,930
18	15,400	15,000	11,400	7,560	7,590	9,560	9,790	10,200	9,120	4,120	3,560	6,410
19	15,400	14,900	11,200	8,100	7,940	9,430	10,000	10,200	9,940	4,060	3,600	7,320
20	15,500	15,100	11,000	8,200	8,150	9,420	9,930	10,300	9,740	3,760	3,200	8,130
21	15,700	15,400	10,800	8,340	8,480	9,280	10,400	10,400	10,400	3,870	3,240	8,300
22	15,100	15,400	10,600	8,250	9,000	9,290	10,300	10,400	10,900	3,620	3,470	8,860
23	15,000	15,900	10,600	8,070	9,220	9,540	10,100	10,500	9,860	3,390	3,670	8,410
24	15,000	16,400	10,500	8,180	9,100	9,610	10,200	10,500	9,190	3,480	3,880	8,890
25	15,200	16,200	9,880	8,300	9,490	9,240	10,100	10,600	8,660	3,580	3,870	9,420
26	15,300	15,100	9,600	8,450	9,810	9,310	10,100	10,400	8,390	3,430	5,060	8,980
27	15,500	14,700	9,520	8,470	9,490	9,480	9,960	10,400	8,520	3,310	6,490	8,480
28	15,500	14,700	9,290	8,520	9,230	9,330	10,100	10,300	9,190	3,500	7,320	8,170
29	15,200		8,460	7,630	9,390	9,550	10,100	10,600	9,540	3,250	6,900	8,390
30	15,200		8,080	7,530	9,230	9,850	9,960	10,600	9,690	3,220	6,850	7,500
31	15,200		8,290		9,370		10,100	10,800		3,300		8,020
Sum	478,600	463,100	359,820	230,540	242,490	285,810	304,850	315,270	294,980	155,130	123,120	201,300
Current Year 1985									Period 1951-1985			
Month	Extreme Gage Feet		Day	Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low		High	Low			Average	Maximum	Minimum		
Jan.	17.65	17.27	3	16,100	123	15,000	15,400	949,289	232,912	1,068,099	29,857	
Feb.	18.68	16.78	6	19,700	11	14,700	16,500	918,545	184,516	995,901	33,790	
Mar.	16.99	14.39	4	15,200	30	8,080	11,600	713,693	189,633	1,073,270	34,604	
Apr.	15.20	13.73	28	8,520	12	6,350	7,680	457,269	178,204	843,010	33,687	
May	15.84	13.71	26	9,810	11	6,470	7,820	480,972	179,956	863,860	45,872	
June	16.22	15.51	2	10,200	11	9,120	9,530	566,896	185,529	902,876	33,856	
July	16.23	15.68	21	10,400	3	9,420	9,830	604,661	224,642	1,632,595	34,413	
Aug.	16.22	15.68	31	10,800	6	9,730	10,200	625,329	231,053	1,681,388	33,610	
Sept.	16.36	15.10	11	11,200	26	8,390	9,830	585,084	202,717	1,353,719	43,182	
Oct.	15.60	11.31	1	9,790	30	3,220	5,000	307,696	175,361	1,451,107	34,965	
Nov.	14.49	10.69	28	7,320	8	2,790	4,100	244,205	176,725	1,047,471	34,832	
Dec.	15.61	10.41	25	9,420	6	2,700	6,490	399,273	206,456	1,114,550	33,023	
	18.68	10.41		19,700		2,700	9,470	6,852,912	2,367,704	10,592,467	513,755	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	5.69	3.17		558		76.5	268	8,452,930	2,920,516	13,065,596	633,712	

§ Mean daily

1 And other days

**COLORADO RIVER BELOW YUMA MAIN CANAL WASTEWAY
AT YUMA, ARIZONA - STAGES**

(See Preceding Page For Description)

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.47	17.19	16.80	14.66	14.46	15.91	15.73	15.82	16.36	15.60	11.37	14.19
2	17.48	17.13	16.85	14.63	14.25	16.22	15.77	15.84	16.33	15.46	11.39	13.85
3	17.57	17.42	16.90	14.63	13.94	16.18	15.68	15.75	16.21	15.03	11.30	13.40
4	17.55	17.98	16.98	14.63	14.06	15.92	15.75	15.89	16.21	14.56	11.37	12.87
5	17.51	18.30	16.99	14.75	14.13	15.87	15.88	15.78	16.12	14.30	11.23	11.21
6	17.39	18.56	16.94	14.75	14.11	15.79	15.78	15.68	16.01	14.35	11.39	10.41
7	17.27	18.68	16.89	14.35	13.72	15.91	15.86	15.83	15.87	14.20	11.09	11.70
8	17.31	18.59	16.71	14.00	13.76	15.87	15.89	15.94	15.95	14.15	10.69	12.50
9	17.37	18.45	16.47	14.00	13.79	15.81	15.72	15.83	16.03	13.90	11.14	13.30
10	17.42	18.20	16.39	13.90	13.71	15.78	15.76	15.82	16.02	13.51	11.28	13.60
11	17.57	17.94	15.96	13.80	13.72	15.51	15.72	15.82	15.94	13.60	11.67	12.90
12	17.65	17.75	15.65	13.73	14.02	15.59	15.75	15.82	15.87	13.09	13.35	13.85
13	17.61	17.69	15.66	13.74	14.19	15.77	15.85	15.78	15.72	13.10	13.91	13.70
14	17.54	17.54	15.75	13.88	14.11	15.64	15.98	15.72	15.49	12.52	12.26	13.62
15	17.47	17.42	15.85	13.85	13.94	15.71	15.85	15.87	15.49	12.21	12.00	13.99
16	17.46	17.33	15.96	13.82	14.10	15.81	15.89	15.78	15.30	12.01	11.96	14.11
17	17.47	17.18	16.10	14.02	14.51	15.83	15.80	15.77	15.17	12.27	12.24	13.88
18	17.52	17.05	16.08	14.60	14.60	15.81	15.84	15.93	15.45	12.44	11.76	14.29
19	17.55	16.99	15.98	15.03	14.80	15.72	15.96	15.92	15.78	12.37	11.82	14.60
20	17.57	17.10	15.88	15.08	14.88	15.71	15.90	15.93	15.70	12.02	11.28	15.03
21	17.65	17.20	15.84	15.15	15.04	15.61	16.23	15.98	15.96	12.14	11.35	15.16
22	17.41	17.19	15.85	15.05	15.32	15.61	16.11	16.00	16.16	11.84	11.65	15.42
23	17.33	17.42	15.89	14.86	15.37	15.77	15.96	16.06	15.74	11.55	11.90	15.21
24	17.34	17.61	15.92	14.92	15.31	15.82	16.00	16.06	15.45	11.62	12.16	15.44
25	17.43	17.49	15.59	15.02	15.61	15.55	15.96	16.08	15.22	11.79	12.11	15.61
26	17.49	17.00	15.42	15.14	15.84	15.60	15.95	16.00	15.10	11.60	13.26	15.55
27	17.59	16.80	15.40	15.16	15.66	15.72	15.88	15.95	15.15	11.45	14.04	15.35
28	17.58	16.78	15.26	15.20	15.50	15.61	15.95	15.90	15.44	11.69	14.49	15.24
29	17.46		14.68	14.50	15.64	15.76	15.96	16.08	15.59	11.36	14.26	15.37
30	17.47		14.39	14.46	15.55	15.97	15.87	16.11	15.67	11.31	14.25	15.00
31	17.46		14.59		15.68		15.99	16.22		11.43		15.17
Avg.	17.48	17.57	15.99	14.51	14.62	15.78	15.88	15.90	15.75	12.85	12.13	14.05

YUMA MESA OUTLET DRAIN **TO COLORADO RIVER NEAR YUMA, ARIZONA**

DESCRIPTION: Venturi meter with recorder 0.3 mile (0.5 km) from outlet to Colorado River, 0.5 mile (0.8 km) west of Joe Henry Memorial Park in Yuma, Arizona. Outlet is 1.7 miles (2.7 km) downstream from the mouth of Yuma Main Canal Wasteway.

RECORDS: Records are furnished by U. S. Geological Survey. Monthly discharge July 1970 through 1985. Prior to July 21, 1972, records furnished by U. S. Bureau of Reclamation.

REMARKS: Records show water pumped from wells on the Yuma Mesa and conveyed by underground conduit to Colorado River.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	51	51	58	56	51	30	22	25	28	25	20	40
2	51	51	58	56	51	30	22	27	28	20	31	40
3	51	51	58	55	52	30	22	27	28	14	22	40
4	51	51	58	55	56	30	22	27	28	14	29	40
5	51	51	58	55	56	30	22	30	28	20	31	40
6	51	51	58	55	56	30	22	33	28	20	31	40
7	51	51	58	55	56	30	22	34	28	20	31	40
8	51	56	58	55	56	30	22	36	28	20	34	40
9	51	60	58	55	56	30	22	36	28	20	44	40
10	51	60	58	55	56	30	22	36	28	20	48	40
11	51	60	58	55	56	30	22	36	28	20	48	40
12	51	60	58	55	56	30	22	36	32	20	43	40
13	51	60	58	55	53	30	22	36	34	20	40	40
14	51	60	58	55	54	30	22	36	34	20	40	40
15	51	60	58	55	53	30	18	36	34	20	40	40
16	51	60	58	55	53	30	22	36	34	17	40	40
17	51	60	58	55	54	30	22	36	34	18	40	40
18	51	60	58	55	56	30	22	36	34	20	40	40
19	51	60	58	55	56	26	22	36	34	20	40	40
20	51	60	58	55	52	22	22	36	34	20	40	40
21	51	60	58	55	53	22	22	36	34	20	40	40
22	51	60	58	54	56	22	22	36	34	20	40	40
23	50	60	58	55	56	22	22	36	34	20	40	40
24	50	60	58	55	56	22	22	36	34	20	40	40
25	50	60	58	55	56	22	22	36	34	20	40	40
26	50	60	58	55	56	22	22	36	21	20	40	40
27	50	60	58	55	56	22	22	36	34	20	40	40
28	48	60	58	55	56	22	22	33	34	20	40	40
29	50		58	55	56	22	22	27	34	20	40	40
30	50		58	52	56	22	22	27	34	18	40	40
31	49		58		44		22	27		14		35
Sum	1,569	1,613	1,798	1,648	1,690	808	678	1,037	939	600	1,132	1,235
Current Year 1985									Period 1971-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			1 1	51	28	48	50.6	3,112	2,542	5,840	0	
Feb.			1 9	60	1 1	51	57.6	3,199	2,414	4,830	0	
Mar.				58		58	58.0	3,566	2,802	5,430	4	
Apr.			1 1	56	30	52	54.9	3,269	2,607	5,120	242	
May			1 4	56	31	44	54.5	3,352	2,493	4,933	0	
June			1 1	30	120	22	26.9	1,603	2,385	4,828	0	
July			1 1	22	15	18	21.9	1,345	2,669	5,510	692	
Aug.			1 8	36	1	25	33.5	2,057	2,925	6,000	180	
Sept.			1 13	34	26	21	31.3	1,862	2,936	5,880	0	
Oct.			1	25	1 3	14	19.4	1,190	2,882	5,360	157	
Nov.			1 10	48	1	20	37.7	2,245	2,948	5,290	313	
Dec.			1 1	40	31	35	39.8	2,450	3,093	5,970	0	
Yearly				60		14	40.4	29,250	32,696	58,680	1,753	
	Meters		Cubic Meters per Second					Thousands of Cubic Meters				
				1.70		0.40	1.14	36,079	40,330	72,381	2,162	

9 Mean daily

1 And other days

DRAIN NO. 8-B (ARAZ DRAIN)

DESCRIPTION: This drain discharges into the Colorado River 4.0 miles (6.4 km) downstream from Colorado River below Yuma Main Canal Wasteway, and 2.5 miles (4.0 km) upstream from the northerly international boundary. Prior to October 1955, published as "Araz Drain."

RECORDS: Records are furnished by the U. S. Geological Survey from current meter measurements during the year. Records available: May 1948 through 1985.

REMARKS: Drain 8-B, which was constructed in February 1948, collects seepage water in the westerly section of the Reservation Division of the Yuma Project which lies in California. Flow in the drain between the mouth and the U. S. Highway No. 80 culvert, about 3,200 feet (975 m) upstream, is affected by backwater from the river during ordinary high stages.

EXTREMES: Mean daily discharge: Maximum, 24 second-feet (0.68 m³/sec) on September 1, 1953; minimum, 0.1 second-foot (0.003 m³/sec) several days in February 1966.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10	10	10	9.4	10	11	11	14	13	15	16	15
2	10	10	10	9.2	10	11	11	14	13	15	16	15
3	10	10	10	9.0	10	11	11	14	13	15	16	15
4	10	10	10	8.8	10	11	11	14	13	15	16	15
5	10	10	10	8.7	10	11	11	14	13	15	17	14
6	10	10	9.5	8.6	10	11	11	14	14	15	17	14
7	10	10	9.5	8.6	10	11	11	14	14	15	17	14
8	10	10	9.5	8.6	10	11	11	14	14	16	17	14
9	10	10	9.5	8.6	10	11	11	13	14	16	17	13
10	10	10	9.5	8.6	10	11	11	13	14	16	17	13
11	10	10	9.5	8.6	10	11	11	13	14	16	17	13
12	10	10	9.5	8.6	10	11	11	13	14	16	17	12
13	10	10	9.5	8.6	10	11	11	13	14	16	17	12
14	10	10	9.5	8.6	11	11	11	13	14	16	17	13
15	10	10	9.5	8.6	11	11	11	13	14	16	17	14
16	10	10	9.5	8.6	11	11	11	13	14	16	17	15
17	10	10	9.5	8.6	11	11	11	12	14	16	17	15
18	10	10	9.5	8.6	11	11	12	12	14	16	16	15
19	10	10	9.5	8.6	11	11	13	12	14	16	16	15
20	10	10	9.5	8.6	11	11	14	12	15	16	16	15
21	10	10	9.5	8.6	11	11	14	12	15	16	16	14
22	10	10	9.5	8.6	11	11	14	12	15	16	16	14
23	10	10	9.5	8.6	11	11	14	12	15	16	16	14
24	10	10	9.5	8.6	11	11	14	12	15	16	16	14
25	10	10	9.5	8.6	11	11	14	12	15	16	16	13
26	10	10	9.5	8.6	11	11	14	12	15	16	16	13
27	10	10	9.5	8.6	11	11	14	12	15	16	16	13
28	10	10	9.5	8.6	11	11	14	12	15	16	16	13
29	10	10	9.5	8.6	11	11	14	12	15	16	16	13
30	10	10	9.5	8.6	11	11	14	12	15	16	16	13
31	10	10	9.5	8.6	11	11	14	12	15	16	16	13
Sum	310	280	297	260.1	328	330	380	396	426	489	493	428
Current Year 1985									Period 1948-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.				10		10	10.0	615	321	899	39.3	
Feb.				10		10	10.0	555	277	746	40.5	
Mar.			1 1	10	1 6	9.5	9.6	589	333	853	62.7	
Apr.			1 1	9.4	1 6	8.6	8.7	516	344	1,000	66.8	
May			114	11	1 1	10	10.6	651	355	966	58.3	
June				11	1 1	11	11.0	655	373	1,030	67.4	
July			120	14	1 1	11	12.3	754	430	1,260	72.8	
Aug.			1 1	14	117	12	12.8	785	478	1,350	73.8	
Sept.			120	15	1 1	13	14.2	845	464	1,370	53.6	
Oct.			1 8	16	1 1	15	15.8	970	483	1,220	55.3	
Nov.			1 5	17	1 1	16	16.4	978	437	1,240	57.7	
Dec.			1 1	15	112	12	13.8	849	390	1,050	42.2	
Yearly				17		8.6	12.1	8,762	4,685	12,429	774	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.48		0.24	0.34	10,808	5,779	15,331	955	

9 Mean daily

1 And other days

PILOT KNOB POWER PLANT AND WASTEWAY NEAR PILOT KNOB, CALIFORNIA

DESCRIPTION: The Pilot Knob Power Plant and Wasteway is located on the All-American Canal, 20.8 miles (33.5 km) downstream from the intake at Imperial Dam, 6 miles (9.7 km) west of Yuma, about one mile (1.6 km) north of the northerly international boundary and empties into the old Alamo Canal in the United States and thence into the Colorado River through Rookwood gates, about one mile (1.6 km) upstream from the northerly international boundary. Water-stage recorder is located in forebay on right bank of the All-American Canal, 550 feet (168 m) upstream from wasteway gates and 1,800 feet (549 m) from entrance to the power plant. Datum of gage is 150.00 feet (45.72 m) above mean sea level. Tailrace gage is on left bank, 680 feet (207 m) downstream from power plant with automatic recording equipment in control house. All bypass gates are equipped with calibrated openings which are read on all gate changes. Datum of tailrace gage is at mean sea level; elevation of sill of wasteway gates is 147.88 feet (45.07 m), U. S. C. & G. S. datum. Prior to October 1956, this station was published as "Pilot Knob Wasteway near Pilot Knob, California."

RECORDS: Daily discharge is computed from flowmeter equipment and head and openings on wasteway gates or from head and gate opening on wicket and wasteway gates. Records furnished by the U. S. Geological Survey. Records available: July 1944 through 1985. The wasteway was operated for the purpose of diverting Colorado River water to the Alamo Canal for use in Mexico from July 1944 to November 8, 1950 in accordance with arrangements between the United States and Mexico for emergency use of the All-American Canal facilities. Records since 1950 show water released through Pilot Knob Power Plant and Wasteway from the All-American Canal and returned to the Colorado River through Rookwood gates.

REMARKS: Pilot Knob Wasteway was completed in 1938, and the first flow occurred on February 5, 1939. Pilot Knob Power Plant was completed in January 1957, and the first flow occurred on January 14, 1957.

EXTREMES: Maximum mean daily discharge, 9,930 second-feet (281 m³/sec) on October 6, 1985; minimum daily discharge, no flow during long periods.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8,240	4,090	6,860	5,930	4,610	6,750	5,550	4,900	7,260	8,060	7,570	9,390
2	8,050	5,090	6,960	5,450	4,670	7,370	5,570	5,090	6,660	7,520	7,840	9,490
3	8,050	6,200	7,500	5,040	4,750	6,960	5,580	5,350	6,400	7,560	8,230	9,580
4	7,980	5,860	7,300	4,160	5,760	6,290	5,600	5,920	5,760	7,750	8,140	9,620
5	8,150	6,470	6,860	4,110	6,200	5,900	5,760	5,450	5,830	7,590	7,850	9,700
6	8,130	6,520	6,770	5,310	5,380	5,510	5,630	5,340	6,350	7,740	7,860	9,930
7	7,780	6,230	6,720	6,170	5,280	5,660	6,110	5,330	6,930	7,030	7,540	9,600
8	7,780	6,260	6,870	5,300	5,360	5,520	5,740	4,950	7,390	6,940	7,670	9,600
9	7,490	7,090	7,480	4,630	5,080	5,700	5,680	5,030	6,850	7,230	8,200	9,310
10	7,580	7,810	8,150	3,960	4,910	5,530	5,520	5,690	6,740	7,690	8,590	9,000
11	7,040	9,520	7,400	3,770	6,110	5,480	5,430	5,810	6,640	8,690	7,260	8,990
12	7,670	8,810	7,100	4,480	6,580	5,530	5,660	5,460	6,370	8,490	4,860	9,000
13	7,790	7,820	6,750	5,160	6,140	5,580	6,190	5,330	6,620	8,440	5,140	9,010
14	7,180	7,530	6,460	5,540	5,560	6,070	6,130	5,190	7,020	8,110	8,330	9,020
15	6,650	7,540	6,840	4,540	5,090	6,650	5,410	4,650	7,090	7,570	8,520	9,000
16	6,470	7,950	7,260	4,150	4,660	6,750	5,680	4,960	6,770	7,280	8,860	9,120
17	6,270	8,280	7,940	4,530	4,940	6,090	5,410	5,340	6,520	7,560	9,130	9,130
18	6,200	7,380	7,330	4,140	5,640	5,230	5,640	5,730	6,530	7,660	8,940	9,120
19	6,160	7,360	7,030	4,640	6,550	5,620	6,380	5,070	8,220	7,700	8,600	9,100
20	6,430	7,500	6,570	5,260	6,410	5,580	6,430	5,020	8,800	8,130	8,510	9,130
21	5,460	6,810	5,640	5,580	5,610	5,760	6,930	5,080	8,110	7,520	8,350	9,110
22	4,950	7,370	5,800	5,070	5,790	6,110	6,540	5,200	7,920	7,340	8,560	9,100
23	5,280	8,070	6,180	4,870	6,000	6,510	6,080	5,330	7,480	7,330	8,860	9,160
24	5,350	8,650	6,190	4,870	6,760	6,340	5,530	5,990	7,050	7,250	9,390	9,170
25	5,190	7,960	5,650	4,460	7,100	5,840	5,560	6,010	6,510	7,410	9,180	9,150
26	5,580	7,440	5,350	4,530	7,380	6,420	5,760	5,750	6,370	7,670	9,390	9,160
27	6,090	6,810	5,010	5,600	6,440	6,190	5,980	5,530	7,420	7,850	9,380	9,170
28	5,420	6,370	5,030	5,940	6,090	6,350	6,180	5,300	8,420	7,350	9,410	9,170
29	4,960		5,410	5,140	6,090	6,230	5,510	5,310	8,500	7,290	9,410	9,170
30	4,560		5,940	4,700	6,000	6,360	5,190	5,980	7,960	7,090	9,430	9,160
31	4,440		6,810		6,310		5,100	6,340		7,100		9,120
Sum	204,370	200,790	205,160	147,030	179,250	181,880	179,460	167,430	211,690	235,940	249,000	286,480
Current Year 1985									Period 1944-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			1	8,240	31	4,440	6,590	405,362	73,194	521,792	0	
Feb.			11	9,520	1	4,090	7,170	398,261	48,584	408,040	0	
Mar.			10	8,150	27	5,010	6,620	406,929	106,141	406,929	0	
Apr.			7	6,170	11	3,770	4,900	291,630	126,810	362,400	0	
May			26	7,380	1	4,610	5,780	355,537	55,563	368,438	0	
June			2	7,370	18	5,230	6,060	360,754	93,998	406,592	0	
July			21	6,930	31	5,100	5,790	355,954	139,595	415,398	0	
Aug.			31	6,340	15	4,660	5,400	332,093	181,515	382,516	0	
Sept.			29	8,600	4	5,760	7,060	419,881	82,360	479,683	0	
Oct.			11	8,690	8	6,940	7,610	467,980	53,582	499,478	0	
Nov.			30	9,430	12	4,860	8,300	493,884	54,207	493,884	0	
Dec.			6	9,930	11	8,990	9,240	568,225	84,819	568,225	0	
Yearly				9,930		3,770	6,710	4,856,490	1,060,318	4,864,696	0	
	Meters		Cubic Meters per Second					Thousands of Cubic Meters				
				281		107	190	5,990,383	1,307,881	6,000,505	0	

9 Mean daily

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank and cableway at the point where the northerly international land boundary (California-Baja California) intersects the Colorado River, about 6.4 miles (10.3 km) downstream from Colorado River below Yuma Main Canal Wasteway, 5 miles (8.0 km) west of Yuma, Arizona, 1.1 miles (1.8 km) upstream from Morelos Diversion Structure, and about one mile (1.6 km) downstream from Rockwood Gate. Zero of the gage is at mean sea level, U. S. C. & G. S. datum. Station is operated by the United States Section of the Commission.

RECORDS: Based on 287 current meter measurements during the year, 194 by the United States Section, 89 by the Mexican Section of the Commission, 5 by the U. S. Geological Survey, and a continuous record of gage heights. Discharges are computed on the basis of a water-stage recorder 1,680 feet (512 m) upstream from the northerly international boundary where the remains of an old weir serve as a partial controlling section. A continuous gage height record is available November 15, 1948 through 1985; daily discharge records available January 1, 1950 through 1985.

REMARKS: Reservoirs on the Colorado River, including Lake Mead above Hoover Dam, where storage began in 1935, reservoirs on the Gila River, and many irrigation diversions and return flows regulate the river flow at this station except for infrequent flood flows. During 1985 the flow at this point represented the total amount of the Colorado River water which crossed the northerly international boundary.

EXTREMES: Prior to January 1935: Maximum instantaneous discharge estimated about 250,000 second-feet, (7,080 m³/sec), January 22, 1916; minimum discharge, no flow several days during August and September 1934; average annual flow 13,443,000 acre-feet (16,581,806,000 m³); maximum annual flow 25,480,000 acre-feet (31,423,325,000 m³), 1907; minimum annual flow 1,174,000 acre-feet (1,448,117,000 m³), 1934. Since January 1935: Maximum instantaneous discharge 40,600 second-feet (1,150 m³/sec) on August 20, 1983, minimum discharge, no flow during April 1935.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23,600	18,600	22,200	14,900	12,300	16,700	15,000	14,900	18,300	17,100	10,500	15,300
2	23,600	21,000	22,400	14,300	12,000	17,900	15,000	15,200	17,800	16,100	10,800	14,900
3	23,700	24,100	23,400	13,300	12,000	17,500	14,900	15,200	16,900	15,400	11,300	14,200
4	23,200	24,900	22,700	12,600	12,700	16,300	15,100	15,900	16,400	14,700	11,300	13,600
5	23,100	26,200	22,200	12,700	13,300	15,700	15,400	15,500	16,400	14,000	10,700	12,300
6	22,600	26,500	22,400	14,100	12,500	15,100	15,200	14,900	16,600	14,300	10,800	12,100
7	22,400	26,400	21,000	13,900	11,800	15,300	15,900	14,900	16,800	12,800	10,400	12,700
8	22,900	26,000	19,600	13,100	12,200	15,200	15,800	14,700	17,100	12,300	10,200	13,400
9	22,900	26,400	19,300	12,200	11,600	15,100	15,100	14,700	16,500	12,800	10,900	14,400
10	23,100	25,800	19,900	11,300	11,300	15,300	15,100	15,200	16,300	13,200	11,700	14,300
11	23,200	25,600	18,200	10,600	12,900	14,900	14,900	15,900	16,100	14,900	10,700	14,000
12	23,200	25,400	17,600	11,100	14,000	14,900	15,300	15,700	16,000	14,000	10,800	14,900
13	23,200	24,400	17,300	11,500	13,500	15,500	15,800	15,100	16,200	14,000	11,600	14,700
14	22,800	23,400	17,200	12,000	12,700	15,700	16,100	15,000	16,300	13,000	12,200	14,600
15	22,100	23,000	17,800	11,200	11,600	16,200	15,200	14,500	16,000	11,600	12,000	15,000
16	21,900	23,200	18,300	10,800	11,700	16,500	15,400	14,700	15,600	10,900	12,400	15,300
17	22,100	23,500	19,400	11,000	12,700	15,700	15,000	14,900	15,100	11,500	12,900	14,900
18	22,400	21,800	18,500	11,200	13,400	14,800	15,300	15,900	15,600	11,600	12,600	15,100
19	22,400	21,900	18,000	12,400	14,700	15,000	16,400	15,200	18,200	12,000	12,400	16,100
20	22,700	22,100	17,300	13,300	14,800	15,200	16,200	14,900	17,600	12,300	11,800	17,500
21	22,000	22,400	16,400	14,200	13,900	15,200	17,400	14,900	18,200	11,500	11,400	18,100
22	21,200	22,500	16,800	13,600	14,700	15,400	16,800	14,800	18,300	10,800	12,000	18,700
23	21,500	23,700	17,100	13,700	15,200	16,100	15,900	15,100	16,900	10,500	12,500	18,100
24	21,400	24,300	17,200	13,700	15,800	15,800	15,500	15,700	15,800	10,400	12,900	18,400
25	21,400	23,200	15,700	13,500	16,600	15,300	15,500	15,800	14,900	10,900	12,900	19,200
26	21,900	22,500	15,100	13,800	17,300	15,700	15,700	15,900	14,100	10,900	14,400	18,500
27	22,500	21,900	14,400	14,400	16,200	15,900	15,900	15,600	15,500	10,900	15,200	18,000
28	21,700	21,300	14,100	14,600	15,200	15,900	16,400	15,400	17,600	10,600	16,100	17,600
29	21,500		13,100	13,300	15,600	16,000	15,800	15,700	17,600	10,600	15,700	17,900
30	21,400		13,600	12,400	15,500	16,600	15,300	16,400	17,200	10,100	15,500	17,100
31	19,900		15,200		15,700		15,300	16,900		10,300		17,200
Sum	693,500	662,000	563,400	384,700	425,200	472,400	483,600	475,100	497,900	386,000	366,600	488,100
Current Year 1985												
Period 1935-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	110.07	109.05	2	24,000	31	18,600	22,400	1,375,537	419,926	1,644,000	31,900	
Feb.	111.59	109.04	6	27,100	1	18,400	23,600	1,313,058	351,428	1,382,678	60,400	
Mar.	110.54	108.08	3	23,600	29	12,800	18,200	1,117,488	366,904	1,259,702	19,400	
Apr.	108.51	107.26	1	15,600	11	9,920	12,800	763,041	306,827	1,072,264	0	
May	109.61	106.93	26	17,500	10	11,000	13,700	843,372	300,568	1,151,000	71,400	
June	109.88	108.23	2	18,200	18	14,500	15,700	966,992	303,854	1,321,388	8,500	
July	109.43	108.30	21	17,800	1	14,500	15,600	959,207	326,317	1,867,835	24,400	
Aug.	109.42	108.25	31	17,300	15	14,400	15,300	942,347	340,134	2,015,207	43,800	
Sept.	110.44	108.81	1	18,900	26	13,700	16,600	987,570	299,510	1,853,355	53,851	
Oct.	110.17	107.17	1	17,400	30	9,550	12,500	765,520	295,140	1,960,066	42,956	
Nov.	110.58	107.16	28	16,200	8	10,100	12,200	727,140	332,549	1,532,231	41,403	
Dec.	110.91	107.44	25	19,300	6	11,900	15,700	968,132	417,458	1,832,000	42,000	
Yearly	111.59	106.93		27,100		9,550	16,200	11,699,504	4,060,615	15,430,412	722,100	
Meters Cubic Meters per Second Thousands of Cubic Meters												
	34.01	32.59		767		270	459	14,431,104	5,008,687	19,033,105	890,696	

* Partly estimated

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	109.98	109.08	109.94	108.33	107.32	109.40	108.52	108.36	109.83	110.07	107.57	110.16
2	109.98	109.28	110.00	108.31	107.30	109.79	108.46	108.45	109.75	109.75	107.76	109.93
3	110.01	109.67	110.20	108.27	107.42	109.66	108.45	108.42	* 109.47	109.54	108.05	109.57
4	109.86	109.86	110.01	108.18	107.58	109.28	108.48	108.65	* 109.29	109.29	108.00	109.21
5	109.80	110.16	109.92	108.17	107.70	109.01	108.60	108.55	109.27	109.06	107.70	108.07
6	109.62	110.23	110.03	108.30	107.46	108.83	108.48	108.37	109.38	109.14	107.77	107.55
7	109.58	110.18	109.83	108.12	107.28	108.88	108.73	108.36	109.49	108.58	107.40	107.86
8	109.78	110.06	109.53	108.00	107.38	108.82	108.71	108.35	109.64	108.44	107.26	108.21
9	109.76	110.29	109.88	107.94	107.12	108.78	108.46	108.38	109.52	108.64	107.80	108.75
10	109.79	110.18	110.10	107.87	107.03	108.82	108.49	108.48	109.50	108.76	108.23	108.77
11	109.77	109.98	109.16	107.90	107.71	108.53	108.45	108.70	109.41	109.38	107.58	108.70
12	109.69	110.05	109.04	108.11	108.32	108.53	108.55	108.63	109.34	108.91	107.69	109.43
13	109.67	109.93	108.91	108.19	108.12	108.74	108.71	108.45	109.32	108.87	108.23	109.31
14	109.59	109.82	108.82	108.27	107.75	108.82	108.82	108.40	109.35	108.49	108.59	109.22
15	109.56	109.82	108.98	108.14	107.36	108.97	108.50	108.35	109.29	107.99	108.49	109.46
16	109.52	109.86	109.15	108.17	107.42	109.04	108.60	* 108.44	109.15	107.78	108.78	109.65
17	109.48	109.98	109.51	* 108.15	107.78	108.76	108.46	* 108.44	108.99	108.19	109.06	109.36
18	109.49	109.86	109.24	* 108.14	108.20	108.39	108.53	* 108.84	109.23	108.43	108.77	109.49
19	109.50	109.94	109.12	* 108.18	108.69	108.42	108.95	* 108.59	110.27	108.51	108.46	109.90
20	109.60	109.95	108.88	108.19	108.69	108.35	108.89	108.48	110.06	108.62	108.07	110.37
21	109.49	109.90	* 108.58	108.18	108.38	108.31	109.29	108.51	110.26	108.32	107.82	110.57
22	109.34	109.93	* 108.65	107.96	108.67	108.38	109.11	108.54	110.34	108.07	108.13	110.76
23	109.50	110.77	108.73	108.06	108.87	108.62	108.77	108.66	109.98	107.90	108.48	110.51
24	109.44	* 110.92	108.70	107.99	109.07	108.60	108.65	108.90	109.65	107.74	108.81	110.57
25	109.40	109.99	108.54	107.83	109.31	108.36	108.64	108.95	109.36	107.91	108.77	110.85
26	109.52	109.89	108.39	107.86	109.54	108.50	108.73	108.94	109.05	107.91	109.67	110.61
27	109.65	109.82	108.24	107.87	109.13	* 108.53	108.76	108.81	109.53	107.91	110.11	110.44
28	109.48	109.72	108.23	107.87	108.78	* 108.55	108.87	108.74	110.23	107.71	110.53	110.31
29	109.48		108.19	107.49	108.91	108.56	108.68	108.84	110.21	107.52	110.36	110.39
30	109.45		108.31	107.36	108.96	108.80	108.46	109.11	110.08	107.27	110.24	109.90
31	109.24		108.51		109.09		108.47	109.30		107.30		109.98
Avg.	109.61	109.97	109.14	108.05	108.14	108.77	108.65	108.61	109.61	108.45	108.47	109.61

* Partly estimated

COOPER WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway for discharging regulatory waste water from the Cooper Canal to the Colorado River. This wasteway is located 0.5 mile (0.8 km) downstream from the northerly international boundary and 0.6 mile (1.0 km) upstream from Morelos Diversion Dam. Prior to July 14, 1971, the wasteway was located 0.4 mile (0.6 km) downstream from Morelos Diversion Dam. This wasteway discharges waste water from the Valley Division of the Yuma Project in the United States into the Colorado River. Since July 14, 1971, zero of the gage is 117.64 feet (35.86 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge March 1950 through 1985 obtained by the United States Section; monthly discharge, January 1934 through 1950 by the Bureau of Reclamation.

EXTREMES: Prior to March 1950, maximum monthly discharge 914 acre-feet (1,127,000 m³) in January 1940; minimum monthly discharge, zero for various months. Since March 1950, maximum instantaneous discharge, 79.3 second-feet (2.25 m³/sec) on June 19, 1955, at a maximum gage height of 114.13 feet (34.79 m) (old datum); minimum instantaneous discharge, zero during parts of each month.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.7	0	0.2	0.1	3.6	0	0.1	5.9	1.3	2.2	0.1
2	0	.1	3.4	.1	.1	.8	0	.1	9.0	1.2	2.2	.1
3	0	.3	1.5	0	0	.1	6.8	.1	.3	6.0	1.1	0
4	0	.1	.1	0	6.4	.1	1.4	3.8	.1	1.7	.5	0
5	0	0	0	0	.4	0	0	.2	.8	4.2	.1	2.7
6	2.5	0	0	1.7	0	.8	2.6	0	10.1	9.5	.1	2.8
7	2.2	0	0	3.6	0	1.3	3.5	0	.4	3.2	0	.2
8	.4	0	2.6	.2	0	1.8	.2	0	.7	1.3	0	.5
9	2.8	2.9	2.8	.1	0	.2	0	1.4	.6	.2	0	.1
10	.3	3.1	0	.1	.9	.4	0	.2	.1	1.2	4.3	0
11	.3	.4	0	0	0	.2	1.4	1.1	0	4.1	.9	0
12	.2	.2	.1	0	0	.5	3.3	1.4	0	.3	.1	0
13	.2	.2	.2	4.5	.1	.2	.1	.1	1.5	.3	.1	0
14	.2	.2	.2	7.7	0	1.2	.1	.1	6.1	1.5	.1	0
15	11.0	4.2	.2	.5	.3	.2	.1	.1	1.1	.3	1.4	.7
16	.6	.2	.6	1.8	2.2	.2	.1	2.1	.1	1.6	5.4	2.7
17	.5	0	.7	2.1	.1	.2	1.5	1.0	5.1	6.7	.3	.4
18	1.0	0	.5	3.7	0	.1	4.3	1.7	1.0	8.1	.1	3.9
19	2.0	0	3.0	4.3	0	.1	.1	0	.2	.5	.1	.3
20	1.0	0	.4	0	.4	6.4	.2	.2	7.3	.4	.1	2.4
21	.2	0	.4	1.4	1.0	.8	0	.5	1.4	.8	.1	1.7
22	.7	0	1.1	.3	.1	2.2	0	.5	1.4	4.0	.1	.9
23	.4	.9	.4	0	0	0	.3	1.0	2.5	1.5	.1	6.8
24	1.1	1.1	.1	0	3.3	0	.2	3.3	1.1	3.7	.5	1.1
25	1.2	1.0	.2	0	.9	0	.1	1.3	1.9	1.0	7.8	.1
26	1.4	1.9	1.3	0	.3	0	1.5	5.1	.5	.3	.6	.1
27	2.1	.1	1.3	1.2	.2	0	.9	.1	2.1	2.1	5.6	.1
28	3.1	.1	.3	0	1.5	0	2.6	.1	3.0	4.4	2.1	.1
29	2.6		.3	.1	.9	0	0	1.7	1.2	3.4	3.4	.1
30	2.7		.3	.1	.8	0	.2	.1	1.4	.2	.3	3.2
31	.5		4.9		0		.1	1.3		3.1		.1
Sum	41.2	17.7	26.9	33.7	20.0	21.4	31.6	28.7	66.9	78.1	39.7	31.2
Current Year 1985									Period 1935-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.21	0	15	18.4	11	0	1.3	81.7	155	914	0	
Feb.	1.38	0	9	22.0	15	0	0.6	35.1	137	400	6.0	
Mar.	1.24	0	9	19.0	11	0	0.9	53.4	147	517	0	
Apr.	1.38	0	19	22.0	12	0	1.1	66.8	152	425	16.7	
May	1.42	0	4	22.8	13	0	0.6	39.7	151	440	31.7	
June	1.25	0	20	19.2	15	0	0.7	42.4	139	595	22.6	
July	1.24	0	6	19.0	11	0	1.0	62.7	131	516	0	
Aug.	1.32	0	4	20.7	16	0	0.9	56.9	100	617	0	
Sept.	1.28	0	2	19.9	111	0	2.2	133	104	462	0	
Oct.	1.36	.02	24	21.6	111	0.1	2.5	155	128	490	0	
Nov.	1.49	0	27	24.3	16	0	1.3	78.7	148	462	9.0	
Dec.	1.55	0	30	25.6	13	0	1.0	61.9	165	592	13.7	
Yearly	1.55	0		25.6		0	1.2	867	1,657	4,500	638	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	0.47	0		0.723		0	0.03	1,069	2,044	5,551	787	

■ Estimated

* Partly estimated

! And other days

COLORADO RIVER IMMEDIATELY ABOVE MORELOS DAM - STAGES

DESCRIPTION: Water-stage recorder located on the right bank of the Colorado River in Mexico attached to the upstream abutment of the gates of the Intake Canal at Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary, and about 7.5 miles (12.1 km) downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date, zero of the gage was 0.16 foot (0.05 m) below mean sea level.

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage height records November 8, 1950 to June 3, 1951; a continuous record of gage heights June 4, 1951 through 1985.

REMARKS: Prior to June 4, 1951, when a continuous water-stage recorder was installed, mean daily gage height records were determined from hourly readings of a staff gage.

EXTREMES: Since November 8, 1950: Maximum mean daily elevation above mean sea level, 114.44 feet (34.88 m) on August 18, 1983; minimum mean daily elevation above mean sea level, 101.51 feet (30.94 m) on February 17, 1957.

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	108.69	107.81	108.69	107.55	106.43	108.50	107.55	107.38	108.86	109.12	106.89	109.55
2	108.66	108.04	108.79	107.61	106.43	108.89	107.48	107.45	108.76	108.79	107.12	109.35
3	108.66	108.37	108.99	107.61	106.63	108.76	107.48	107.45	108.46	108.56	107.41	108.99
4	108.56	108.53	108.89	107.55	106.59	108.37	107.51	107.68	108.30	108.33	107.38	108.60
5	108.53	108.73	108.79	107.51	106.66	108.10	107.61	107.61	108.30	108.14	107.02	107.28
6	108.37	108.73	108.89	107.48	106.53	107.91	107.55	107.45	108.43	108.20	107.09	106.66
7	108.30	108.63	108.73	107.28	106.40	107.94	107.78	107.48	108.56	107.74	106.73	106.99
8	108.46	108.50	108.50	107.32	106.43	107.84	107.81	107.48	108.73	107.58	106.59	107.38
9	108.46	108.83	108.96	107.38	106.23	107.81	107.58	107.48	108.63	107.78	107.22	107.97
10	108.50	108.79	109.15	107.38	106.20	107.84	107.58	107.55	108.63	107.91	107.68	108.04
11	108.50	108.40	108.14	107.51	106.89	107.55	107.58	107.74	108.53	108.50	107.02	108.04
12	108.43	108.37	107.97	107.74	107.58	107.55	107.64	107.64	108.50	108.07	107.12	108.86
13	108.40	108.27	107.91	107.78	107.25	107.74	107.78	107.48	108.46	108.04	107.64	108.76
14	108.37	108.17	107.78	107.74	106.82	107.84	107.91	107.45	108.53	107.71	108.07	108.66
15	108.27	108.20	107.91	107.71	106.50	107.97	107.58	107.41	108.46	107.22	107.97	108.92
16	108.23	108.20	108.07	107.81	106.53	108.07	107.68	107.48	108.37	107.05	108.23	109.09
17	108.20	108.37	108.40	107.78	106.82	107.74	107.55	107.48	108.17	107.55	108.53	108.79
18	108.27	108.30	108.17	107.64	107.25	107.35	107.58	107.87	108.40	107.71	108.23	108.92
19	108.33	108.46	108.04	107.51	107.71	107.35	108.01	107.61	109.45	107.91	107.87	109.32
20	108.43	108.50	107.84	107.45	107.71	107.28	108.01	107.51	109.25	108.04	107.45	109.81
21	108.37	108.50	107.51	107.35	107.38	107.25	108.37	107.48	109.48	107.74	107.19	110.01
22	108.27	108.46	107.58	107.22	107.68	107.32	108.17	107.51	109.51	107.48	107.51	110.17
23	108.37	109.35	107.68	107.28	107.91	107.48	107.78	107.68	109.19	107.28	107.84	109.88
24	108.23	109.58	107.68	107.19	108.07	107.48	107.64	107.97	108.92	107.15	108.20	109.94
25	108.17	108.60	107.51	107.05	108.33	107.32	107.61	108.04	108.66	107.28	108.17	110.17
26	108.30	108.53	107.41	107.09	108.56	107.41	107.68	108.04	108.37	107.32	109.09	109.88
27	108.43	108.50	107.38	106.96	108.14	107.48	107.78	107.91	108.86	107.28	109.58	109.68
28	108.27	108.46	107.41	106.96	107.81	107.48	107.87	107.84	109.48	107.05	109.97	109.58
29	108.23		107.55	106.63	107.94	107.51	107.71	107.94	109.45	106.86	109.78	109.68
30	108.17		107.58	106.53	108.04	107.78	107.45	108.17	109.19	106.53	109.65	109.19
31	107.97		107.61		108.17		107.45	108.33		106.63		109.28
Avg.	108.37	108.50	108.10	107.38	107.22	107.78	107.71	107.68	108.76	107.71	107.87	108.96

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - DISCHARGES

DESCRIPTION: Water-stage recorder and staff gage on left bank of Intake Canal, 200 feet (61.0 m) downstream from the intake at Morelos Dam, 1,350 feet (410 m) upstream from the point where it joins the old Alamo Canal, 2.2 miles (3.5 km) upstream from Matamoros Check, and about one mile (1.6 km) south of the northernly international boundary. The zero of the gage is 0.16 foot (0.05 m) below mean sea level, U. S. C. & G. S. datum.

RECORDS: The records are deduced from the flows arriving in the limitrophe section of the Colorado River at the northernly international boundary, the flows that pass downstream from the structure, and leakage through the structure. Records available: November 8, 1950 through 1985. Records obtained and furnished by the Mexican Section of the Commission.

REMARKS: The canal is operated with a minimum hydraulic slope to permit the maximum retention of silt above Matamoros Check, and the lower velocities in the canal do not permit measuring the flow with a current meter. Records for this station show the amounts of Colorado River water diverted at Morelos Diversion Dam to the Intake Canal and thence to the Alamo Canal for use in Mexico. Under conditions set forth in the 1944 Water Treaty, water for use in Mexico may be diverted to the Alamo Canal in the United States directly from the river at Rockwood Heading, or by means of Imperial Dam, the All-American Canal, and certain facilities of the Imperial Irrigation District. No diversions of this nature have been made during the years 1951 through 1985, and consequently the records reported below show the total water diverted from the Colorado River to the Alamo Canal during those years. Mexico occasionally pumps water from the Colorado River at other points below Morelos Dam when water is available in the channel.

EXTREMES: Maximum mean daily discharge, 6,600 second-feet (187 m³/sec), July 12 and 14, 1983; maximum mean daily gage height, 107.32 (32.71 m) March 30 and 31, 1985. Minimum daily discharge, no flow on various occasions.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,530	3,020	3,640	5,010	4,380	2,750	4,910	4,730	4,870	2,260	1,930	2,190
2	1,570	2,980	3,640	5,010	4,340	2,940	4,980	4,800	4,870	2,260	2,010	2,190
3	1,550	2,960	3,710	5,090	4,380	2,780	5,010	4,870	4,660	2,190	2,020	2,170
4	1,640	2,790	3,880	5,050	4,340	2,710	5,050	4,870	4,380	2,120	2,030	2,280
5	1,560	2,540	3,880	5,160	4,380	2,930	4,910	4,770	4,410	2,080	2,090	2,870
6	1,660	2,290	3,920	5,160	4,270	3,080	4,870	4,800	4,170	2,080	2,040	3,470
7	1,710	2,210	3,810	4,910	4,310	3,260	5,050	4,870	3,990	2,080	1,990	3,520
8	1,680	2,290	3,640	4,910	3,920	3,320	4,980	4,840	3,920	2,030	1,890	3,710
9	1,660	2,360	3,780	4,840	3,380	3,370	4,910	4,910	3,880	2,040	1,860	3,810
10	1,900	2,490	3,850	4,910	3,270	3,340	4,870	4,980	3,670	2,010	1,830	3,810
11	2,160	2,530	3,850	5,090	3,240	3,390	4,800	4,940	3,570	1,920	1,840	3,330
12	2,280	2,560	3,810	5,440	3,240	3,420	4,870	4,910	3,530	1,910	1,840	2,890
13	2,270	2,560	3,710	5,620	2,970	3,570	4,870	4,940	3,570	1,880	1,940	2,850
14	2,320	2,680	3,780	5,690	2,670	3,570	4,870	4,940	3,530	1,810	1,920	2,870
15	2,310	2,810	3,880	5,650	2,480	3,780	4,730	4,800	3,460	1,660	1,910	2,900
16	2,390	2,790	3,850	5,970	2,420	3,880	4,730	4,800	3,340	1,670	1,840	2,950
17	2,430	2,740	4,060	5,720	2,740	4,060	4,840	4,910	3,390	1,760	1,800	3,120
18	2,550	2,810	4,130	5,470	2,870	4,310	4,770	4,910	3,310	1,800	1,850	3,110
19	2,640	2,840	4,100	5,440	2,960	4,340	4,770	4,840	3,150	1,840	2,010	3,030
20	2,780	2,860	4,130	5,370	3,020	4,410	4,730	4,940	3,000	1,770	2,170	3,080
21	2,850	3,030	4,170	5,260	3,120	4,560	4,800	4,840	2,720	1,720	2,190	3,010
22	2,850	3,210	4,200	5,120	3,120	4,700	4,770	4,870	2,650	1,700	2,150	3,090
23	2,850	3,140	4,520	5,230	3,020	4,800	4,870	4,910	2,540	1,680	2,220	3,220
24	2,970	3,090	4,630	5,260	2,990	4,840	4,870	4,940	2,420	1,820	2,190	3,380
25	3,090	3,020	4,770	5,260	3,090	4,870	4,800	4,840	2,390	1,910	2,310	3,380
26	3,080	3,060	4,770	5,300	3,040	5,010	4,840	4,870	2,370	1,980	2,190	3,380
27	3,030	3,190	4,590	5,160	3,030	4,770	4,800	4,840	2,490	2,010	2,000	3,350
28	2,960	3,510	4,630	5,050	3,090	4,870	4,800	4,660	2,380	2,090	2,080	3,290
29	2,920		4,800	4,840	3,190	4,980	4,840	4,730	2,310	1,970	2,080	3,280
30	2,920		4,840	4,630	2,640	4,980	4,870	4,770	2,300	2,030	2,120	3,320
31	2,980		5,010		2,620		4,800	4,800		2,030		3,310
Sum	78,360		156,620		117,590		150,440		60,110		96,160	
	73,090	127,980		102,530		150,580		101,240		60,340		
Current Year 1985												
Period 1950-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	106.33	103.90	25	3,090	1	1,530	2,360	144,910	80,945	207,383	966	
Feb.	106.96	105.45	28	3,510	7	2,210	2,800	155,480	77,910	199,356	9,232	
Mar.	107.41	106.66	31	5,010	1	3,640	4,130	253,845	181,786	300,845	97,902	
Apr.	107.32	105.77	16	5,970	30	4,630	5,230	210,581	208,669	313,733	153,792	
May	106.46	104.79	1	4,380	16	2,420	3,310	203,384	108,313	210,318	66,207	
June	107.09	105.22	26	5,010	4	2,710	3,920	233,251	161,125	269,632	95,177	
July	107.19	106.76	1	5,050	15	4,730	4,870	298,743	227,378	356,040	125,745	
Aug.	107.25	106.86	10	4,980	28	4,660	4,840	298,463	223,461	341,044	130,298	
Sept.	107.19	104.69	1	4,870	30	2,300	3,380	200,820	133,109	273,177	53,633	
Oct.	104.76	103.67	1	2,260	15	1,660	1,940	119,217	67,832	227,661	10,453	
Nov.	104.99	104.04	25	2,310	17	1,800	2,010	119,651	56,569	209,478	7,516	
Dec.	106.40	104.63	1	3,810	3	2,170	3,100	190,733	87,756	200,974	8,825	
Yearly	107.41	103.67		5,970		1,530	3,490	2,529,078	1,617,812	2,798,192	1,272,332	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	32.74	31.60		169		43.4	98.9	3,119,584	1,995,550	3,451,533	1,569,404	

0 Mean daily

1 And other days

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE - STAGES

(See Preceding Page For Description)

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	104.00	106.36	106.92	107.19	105.91	105.48	106.89	106.92	107.12	104.69	104.46	104.69
2	104.10	106.27	106.92	107.25	105.97	105.48	106.96	106.99	107.05	104.66	104.40	104.69
3	104.20	106.27	106.92	107.22	106.07	105.54	106.96	106.96	106.96	104.59	104.33	104.66
4	104.33	106.10	106.73	107.15	106.10	105.54	106.99	106.99	106.76	104.46	104.30	104.79
5	104.63	105.87	106.73	107.09	106.14	105.71	106.96	106.96	106.76	104.40	104.46	105.48
6	104.86	105.64	106.76	107.05	105.97	105.87	106.99	106.96	106.56	104.43	104.49	105.97
7	105.02	105.48	106.76	106.86	105.91	106.10	107.12	106.99	106.43	104.40	104.49	106.10
8	104.99	105.48	106.79	106.86	105.81	106.20	107.05	107.05	106.40	104.40	104.33	106.27
9	104.99	105.58	106.89	106.89	105.61	106.23	107.05	107.09	106.27	104.40	104.23	106.33
10	105.18	105.77	106.92	106.86	105.64	106.20	107.05	107.09	106.17	104.36	104.30	106.27
11	105.38	105.84	106.89	106.99	105.68	106.20	107.02	107.09	106.14	104.20	104.40	105.77
12	105.48	105.91	106.92	107.15	105.68	106.23	107.09	107.02	106.10	104.20	104.27	105.28
13	105.51	105.91	106.89	107.15	105.48	106.30	107.12	107.09	106.14	104.10	104.30	105.15
14	105.51	105.94	106.89	107.19	105.38	106.30	107.12	107.05	106.07	104.00	104.23	105.18
15	105.54	106.07	107.02	107.15	105.12	106.46	106.99	107.05	106.04	103.87	104.20	105.15
16	105.68	106.20	106.99	107.22	105.05	106.56	107.02	107.09	105.97	103.84	104.13	105.25
17	105.71	106.20	107.05	107.12	105.35	106.76	106.96	107.05	106.00	103.87	104.07	105.41
18	105.77	106.20	107.05	106.99	105.48	106.92	106.99	107.09	105.91	103.84	104.17	105.45
19	105.94	106.20	107.12	106.86	105.64	106.89	106.99	107.02	105.74	103.87	104.33	105.51
20	106.07	106.23	107.09	106.76	105.81	106.89	106.96	107.09	105.54	103.84	104.56	105.48
21	106.04	106.40	107.15	106.69	105.97	106.86	106.99	107.02	105.25	103.81	104.69	105.48
22	106.04	106.46	107.28	106.53	105.81	106.92	106.96	107.09	105.09	103.71	104.66	105.58
23	106.04	106.50	107.35	106.59	105.71	106.96	106.96	107.09	104.89	103.71	104.79	105.71
24	106.14	106.50	107.38	106.56	105.71	106.89	106.96	107.12	104.79	103.84	104.82	105.81
25	106.14	106.46	107.25	106.56	105.81	106.89	106.96	107.09	104.72	103.97	104.82	105.77
26	106.17	106.50	107.19	106.59	105.81	107.02	106.99	107.09	104.69	104.10	104.66	105.81
27	106.14	106.56	107.12	106.46	105.81	106.96	106.96	107.09	104.72	104.13	104.43	105.81
28	106.10	106.86	107.15	106.30	105.87	106.96	106.99	107.02	104.72	104.27	104.59	105.77
29	106.14		107.25	106.14	105.91	106.96	106.96	107.09	104.72	104.30	104.66	105.81
30	106.17		107.32	106.00	105.51	106.99	106.99	107.09	104.69	104.36	104.66	105.77
31	106.27		107.32		105.48		106.96	107.12		104.49		105.84
Avg.	105.48	106.14	107.02	106.86	105.71	106.43	106.99	107.05	105.81	104.17	104.43	105.54

COLORADO RIVER IMMEDIATELY BELOW MORELOS DAM - STAGES

DESCRIPTION: Water-stage recorder located on the right bank of the Colorado River in Mexico immediately downstream from Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary, and about 7.5 miles (12.1 km) downstream from the Colorado River below Yuma Main Canal Wasteway. Since April 17, 1969, zero of the gage is at mean sea level, U. S. C. & G. S. datum; prior to that date, zero of the gage was 0.16 foot (0.05 m) below mean sea level.

RECORDS: Records obtained and furnished by the Mexican Section of the Commission. Records available: Staff gage heights, February 20, 1951 to June 6, 1966; continuous record of gage heights June 7, 1966 through 1985.

REMARKS: On June 7, 1966 a continuous water-stage recorder was installed; prior to this date, mean daily gage heights were determined from hourly readings of staff gage.

EXTREMES: Maximum mean daily gage height, 113.98 feet (34.74 m) on August 18, 1983; minimum mean gage height, 98.03 feet (29.88 m) several days during December 1982.

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	108.53	107.71	108.60	106.50	105.71	108.37	107.22	107.05	108.66	108.96	106.27	108.33
2	108.50	107.94	108.69	106.17	105.51	108.76	107.15	107.15	108.56	108.66	106.46	108.17
3	108.46	108.30	108.89	105.77	105.25	108.66	107.15	107.23	108.27	108.40	106.69	107.91
4	108.37	108.46	108.79	105.58	105.87	108.27	107.22	107.51	108.10	108.20	106.63	107.61
5	108.33	108.66	108.69	105.54	106.33	107.97	107.38	107.41	108.14	107.97	106.36	106.53
6	108.17	108.66	108.76	106.17	105.94	107.81	107.32	107.09	108.27	108.07	106.43	106.00
7	108.10	108.53	108.63	106.36	105.58	107.81	107.38	107.05	108.37	107.58	106.10	106.27
8	108.27	108.43	108.37	105.64	105.94	107.74	107.51	106.89	108.50	107.32	105.97	106.59
9	108.33	108.50	108.30	105.02	105.91	107.71	107.12	106.92	108.40	107.45	106.50	107.09
10	108.40	108.43	108.43	104.66	105.81	107.71	107.12	107.22	108.40	107.61	106.82	107.09
11	108.37	108.30	107.97	103.97	106.56	107.45	107.09	107.58	108.27	108.20	106.27	107.05
12	108.30	108.30	107.87	104.04	107.28	107.45	107.19	107.48	108.20	107.78	106.36	107.78
13	108.23	108.17	107.78	104.40	107.05	107.61	107.51	107.19	108.17	107.78	106.82	107.68
14	108.20	108.07	107.64	104.76	106.69	107.71	107.71	107.09	108.20	107.45	107.25	107.61
15	108.17	108.04	107.78	104.27	106.36	107.81	107.38	106.92	108.17	106.99	107.05	107.81
16	108.10	108.07	107.94	103.84	106.40	107.91	107.45	107.02	108.01	106.76	107.25	107.94
17	108.07	108.30	108.27	104.07	106.73	107.61	107.32	107.15	107.87	106.96	107.51	107.64
18	108.14	108.27	108.07	104.46	107.12	107.22	107.35	107.68	108.10	106.99	107.28	107.78
19	108.17	108.40	107.91	105.31	107.58	107.22	107.78	107.38	109.15	107.19	107.02	108.07
20	108.27	108.43	107.68	106.00	107.58	107.05	107.81	107.28	108.96	107.28	106.63	108.43
21	108.23	108.43	107.32	106.63	107.25	106.89	108.20	107.35	109.15	107.02	106.40	108.63
22	108.20	108.43	107.32	106.14	107.55	106.92	108.01	107.32	109.19	106.82	106.66	108.73
23	108.30	108.66	107.41	105.87	107.78	107.28	107.61	107.51	108.86	106.66	106.96	108.50
24	108.20	108.83	107.45	105.97	107.94	107.35	107.49	107.78	108.53	106.50	107.25	108.53
25	108.14	108.46	107.02	105.81	108.20	106.86	107.45	107.87	108.23	106.66	107.19	108.73
26	108.27	108.43	106.99	105.84	108.46	107.02	107.55	107.84	107.97	106.66	107.91	108.46
27	108.37	108.40	106.66	106.50	108.04	107.28	107.61	107.71	108.43	106.63	108.30	108.33
28	108.20	108.37	106.40	106.73	107.71	107.35	107.74	107.64	109.12	106.43	108.66	108.23
29	108.17		105.87	106.10	107.81	107.35	107.55	107.71	109.12	106.23	108.53	108.27
30	108.07		106.00	105.68	107.91	107.61	107.28	107.97	108.96	105.97	108.40	107.94
31	107.84		106.89		108.04		107.28	108.17		106.04		108.04
Avg.	108.23	108.37	107.74	105.45	106.89	107.58	107.45	107.38	108.46	107.25	106.99	107.81

WELLTON-MOHAWK DRAINAGE WATER DISCHARGED TO COLORADO RIVER BELOW MORELOS DAM

DESCRIPTION: Water-stage recorder located on downstream end of the Wellton-Mohawk Drainage Extension Channel on the Arizona bank of the Colorado River at the east end of the weir section of Morelos Dam, 1.1 miles (1.8 km) downstream from the northerly international boundary. The elevation of the zero of the gage has not been determined.

RECORDS: Based on discharge measurements and a continuous record of gage heights. Station is operated by the United States Section of the Commission. Records available: November 16, 1965 through 1985.

REMARKS: Pursuant to Minute 218 of the Commission, an extension to the Wellton-Mohawk Drainage Conveyance Channel was constructed along the left bank of the Colorado River to a point immediately below Morelos Dam, a distance of about 12 miles (19.3 km), and placed in operation on November 16, 1965. Drainage flows may be discharged on an emergency basis to the Gila River and thence to the Colorado River at the diversion structure, Main Outlet Drain Extension No. 1, at the upstream end of the extension; directly to the Colorado River at Main Outlet Drain Extension No. 2, 1.9 miles (3.1 km) upstream from Morelos Dam; and directly to the Colorado River immediately below Morelos Dam at this station, Main Outlet Drain Extension No. 3. On July 14, 1972, Minute No. 241 of the Commission became effective. The Minute called for discharge of all Wellton-Mohawk drainage waters to be made below Morelos Dam. On August 30, 1973, Minute No. 242 of the Commission became effective. The Minute called for construction of a concrete-lined bypass drain from Morelos Dam to the Santa Clara Slough in Mexico. On June 23, 1977, the first flow was recorded in the bypass drain. Drainage flows through Main Outlet Extension No. 3 will be only on an emergency basis.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0			0	0	# 15.5	0	0	0	0	0.7	0
2	0	0	0	0	0	# 15.5	0	0	0	0	.6	0
3	0	0	0	0	0	# 5.8	0	0	0	0	.6	.1
4	0	0	0	0	0	0	0	0	0	.6	.6	0
5	0	0	0	0	0	0	0	0	0	1.2	.8	.1
6	0	0	0	0	0	0	0	0	0	1.4	.8	.2
7	0	0	0	0	0	0	0	0	0	1.4	.8	.2
8	0	0	0	2.7	0	0	0	0	0	1.3	.8	.2
9	0	0	0	13.2	0	0	0	0	4.0	.8	.8	.2
10	0	0	0	2.3	0	0	0	0	5.4	0	.8	.2
11	0	0	0	1.2	0	0	0	0	2.8	.9	.7	.1
12	0	0	0	.8	0	0	0	0	2.2	1.4	.7	0
13	0	0	0	.2	0	0	0	0	1.4	1.4	.4	0
14	0	0	0	.2	0	0	0	0	1.2	1.2	.2	0
15	0	0	0	0	0	0	0	0	1.2	.8	.2	0
16	0	0	0	.1	0	0	0	0	1.1	.8	.2	0
17	0	0	0	0	0	0	0	0	1.1	1.0	.6	0
18	0	0	0	0	0	0	0	0	.7	1.0	.6	0
19	0	0	0	0	0	0	0	0	0	1.0	.2	0
20	0	0	0	0	0	0	0	.5	0	1.0	.2	0
21	0	0	0	0	0	0	0	.8	0	.8	0	0
22	0	0	0	0	1.0	0	0	0	0	.8	0	0
23	0	0	0	0	3.9	0	0	0	0	.8	0	0
24	0	0	0	0	1.2	0	0	0	0.1	.8	0	0
25	0	0	0	0	.6	0	0	0	0	.8	0	0
26	0	0	0	0	0	0	0	0	0	.8	0	0
27	0	0	0	0	0	0	0	0	0.2	.8	0	0
28	0	0	0	0	0	0	0	0	0.2	.6	0	0
29	0	0	0	0	0	0	0	0	0.2	.6	0	0
30	0	0	0	0	0	0	0	0	0	.6	0	0
31	0	0	0	0	# 7.8	0	0	0	0	.6	0	0
Sum	0	0	0	20.7	14.5	36.8	0	1.3	21.8	25.2	11.3	1.3
Current Year 1985									Period 1966-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	0	0		0		0	0	0	9,706	18,718	0	
Feb.	0	0		0		0	0	0	7,553	16,992	0	
Mar.	0	0		0		0	0	0	5,273	18,506	0	
Apr.	.35	0	1 9	13.5	1 1	0	.7	41.1	4,393	18,061	0	
May	# .40	0	31	# 15.5	1 1	0	.5	28.8	7,191	19,091	0	
June	# .40	0	1	# 15.5	1 3	0	1.2	73.0	5,660	18,755	0	
July	0	0		0		0	0	0	5,201	18,946	0	
Aug.	.10	0	120	3.2	1 1	0	0	2.6	5,283	19,188	0	
Sept.	.58	0	18	24.0	1 1	0	.7	43.2	7,430	18,474	0	
Oct.	.97	0	11	48.9	1 1	0	.8	50.0	10,459	19,200	0	
Nov.	.03	0	1 1	.8	113	0	.4	22.4	9,916	18,478	0	
Dec.	.01	0	1 3	.2	1 1	0	0	2.6	9,005	19,121	0	
	0.97	0		48.9		0	0.4	264	87,070	214,781	0	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	0.30	0		1.38		0	0.01	326	107,399	264,930	0	

Estimated

* Partly estimated

! And other days

COLORADO RIVER AT MORELOS GAGING STATION - DISCHARGES

DESCRIPTION: Water-stage recorder was located on the left (Arizona) bank of the river, and cableway 1.8 miles (2.9 km) downstream from the northerly international boundary, 0.7 mile (1.1 km) downstream from Morelos Diversion Dam, and about 9 miles (14.5 km) downstream from Yuma, Arizona, along the river levee. Zero of gage was at mean sea level, U. S. C. & G. S. datum. Cableway dismantled on August 22, 1983. Recorder destroyed on July 4, 1983. Temporary recorder was installed 0.4 mile (0.6 km) upstream, and levels were established to ensure continuous record to date.

RECORDS: Based on current meter measurements, continuous record of gage heights and, beginning August 23, 1983, from deduced flow computations. Before August 23, 1983, computations by shifting control methods. Records available: Daily discharges, January 1, 1954 through 1985; continuous record of gage heights, July 20, 1952 through 1985.

REMARKS: Reservoirs, diversions in the United States and Mexico, drainage returns, and waste flows modify the river flow at this station. Deduced records beginning August 23, 1983 were derived by addition of flows at northerly international boundary, Cooper Wasteway, and M.O.D.E. No. 3, and subtraction of diversions into Alamo Canal at Morelos Dam. Diversion data were supplied by the Mexican Section of the International Boundary and Water Commission.

EXTREMES: Maximum instantaneous discharge, 38,000 second-feet (1,076 m³/sec) on August 18, 1983; maximum gage height, 112.99 feet (34.44 m) on August 18, 1983. Minimum discharge, no flow on various occasions.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22,100	15,600	18,600	9,890	7,920	14,000	10,100	10,200	13,400	14,800	8,570	13,100
2	22,000	18,000	18,800	9,290	7,660	15,000	10,000	10,400	12,900	13,800	8,790	12,700
3	22,000	21,100	19,700	8,210	7,620	14,700	9,900	10,300	12,200	13,200	9,280	12,000
4	21,600	22,100	18,800	7,550	8,370	13,600	10,100	11,000	12,000	12,600	9,270	11,300
5	21,500	23,700	18,300	7,540	8,920	12,800	10,500	10,700	12,000	11,900	8,610	9,430
6	20,900	24,200	18,500	8,940	8,230	12,000	10,300	10,100	12,400	12,200	8,760	8,630
7	20,700	24,200	17,200	8,990	7,490	12,000	10,900	10,000	12,800	10,700	8,410	9,180
8	21,200	23,700	16,000	8,190	8,280	11,900	10,800	9,860	13,200	10,300	8,310	9,690
9	21,200	24,000	15,500	7,370	8,220	11,700	10,200	9,790	12,600	10,800	9,040	10,600
10	21,200	23,300	16,000	6,390	8,030	12,000	10,200	10,200	12,600	11,200	9,870	10,500
11	21,000	23,100	14,400	5,510	9,660	11,500	10,100	11,000	12,500	13,000	8,860	10,700
12	20,900	22,800	13,800	5,660	10,800	11,500	10,400	10,800	12,500	12,100	8,960	12,000
13	20,900	21,800	13,600	5,880	10,500	11,900	10,900	10,200	12,600	12,100	9,660	11,800
14	20,500	20,700	13,400	6,320	10,000	12,100	11,200	10,100	12,800	11,200	10,300	11,700
15	19,800	20,200	13,900	5,550	9,120	12,400	10,500	9,700	12,500	9,940	10,100	12,100
16	19,500	20,400	14,500	4,830	9,280	12,600	10,700	9,900	12,300	9,230	10,600	12,400
17	19,700	20,800	15,300	5,280	9,760	11,600	10,200	9,990	11,700	9,750	11,100	11,800
18	19,900	19,000	14,400	5,730	10,500	10,500	10,500	11,000	12,300	9,810	10,800	12,000
19	19,800	19,100	13,900	6,960	11,700	10,700	11,600	10,400	15,100	10,200	10,400	13,100
20	19,900	19,200	13,200	7,930	11,800	10,800	11,500	9,960	14,600	10,500	9,630	14,400
21	19,200	19,400	12,200	8,940	10,800	10,600	12,600	10,100	15,500	9,780	9,210	15,100
22	18,400	19,300	12,600	8,480	11,600	10,700	12,000	9,930	15,700	9,100	9,850	15,600
23	18,700	20,600	12,600	8,470	12,200	11,300	11,000	10,200	14,400	8,820	10,300	14,900
24	18,400	21,200	12,600	8,440	12,800	11,000	10,600	10,800	13,400	8,580	10,700	15,000
25	18,300	20,200	10,900	8,240	13,500	10,400	10,700	11,000	12,500	8,990	10,600	15,800
26	18,800	19,400	10,300	8,500	14,300	10,700	10,900	11,000	11,700	8,920	12,200	15,100
27	19,500	18,700	9,810	9,200	13,200	11,100	11,100	10,800	13,000	8,890	13,200	14,700
28	18,700	17,800	9,470	9,550	12,100	11,000	11,600	10,700	15,200	8,520	14,000	14,300
29	18,600		8,300	8,460	12,400	11,000	11,000	11,000	15,300	8,630	13,600	14,600
30	18,500		8,760	7,770	12,900	11,600	10,400	11,600	14,900	8,070	13,400	13,800
31	16,900		10,200		13,100		10,500	12,100		8,270		13,900
Sum	620,500	583,600	435,540	228,100	322,760	354,700	333,000	324,830	396,600	325,900	306,380	391,930
Current Year 1985												
Period 1954-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total	Acres-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	108.05	107.27	2	22,400	31	15,600	20,000	1,230,744	208,019	1,368,793	478	
Feb.	108.53	107.21	6	24,800	1	15,400	20,800	1,157,554	135,909	1,183,735	491	
Mar.	108.30	105.18	3	19,900	29	8,000	14,000	863,881	104,202	958,810	659	
Apr.	106.76	103.04	1	10,600	11	4,830	7,600	452,430	85,298	758,281	745	
May	108.05	104.70	26	14,500	3	7,420	10,400	640,185	115,355	886,810	460	
June	108.31	106.16	2	15,300	25	10,000	11,800	703,537	106,352	1,081,388	507	
July	107.70	106.26	21	13,000	1	9,590	10,700	660,496	126,263	1,513,587	584	
Aug.	107.73	106.35	31	12,500	15	9,600	10,500	684,291	137,237	1,607,851	618	
Sept.	108.79	107.28	22	16,000	118	11,300	13,200	786,645	134,295	1,851,421	113	
Oct.	108.61	105.41	1	15,100	30	7,520	10,500	646,413	157,205	1,744,066	383	
Nov.	108.40	105.52	28	14,100	8	8,210	10,200	607,696	164,179	1,322,777	355	
Dec.	108.40	105.53	25	15,900	6	8,430	12,600	777,382	189,883	1,295,603	465	
Yearly	108.79	103.04		24,800		4,830	12,700	9,171,254	1,664,397	12,757,287	31,756	
Meters												
Cubic Meters per Second												
Thousands of Cubic Meters												
	33.16	31.41		702		137	360	11,312,558	2,053,000	15,735,858	39,170	

* Partly estimated

Δ Deduced

! And other days

COLORADO RIVER AT MORELOS GAGING STATION - STAGES

(See Preceding Page For Description)

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	107.91	107.26	107.96	106.04	105.26	107.88	106.68	106.60	*108.15	*108.51	105.91	107.94
2	107.92	107.45	108.05	105.69	105.10	108.23	106.61	106.65	*108.08	*108.20	106.09	107.80
3	107.93	107.78	108.25	105.29	104.77	108.12	106.56	106.74	*107.77	*107.98	106.33	107.52
4	107.84	107.89	108.16	105.03	105.40	*107.71	106.64	107.00	107.61	*107.76	106.32	107.24
5	107.75	108.03	108.09	105.01	105.83	*107.47	106.86	106.89	107.63	*107.55	106.05	106.19
6	107.60	107.96	108.18	105.64	105.51	*107.30	106.74	106.57	107.76	*107.66	106.09	105.61
7	107.54	107.84	108.06	105.76	105.14	*107.39	107.00	106.63	107.88	*107.14	105.81	105.87
8	107.73	107.75	107.78	105.07	105.48	107.32	106.97	106.49	107.95	*106.93	105.62	106.19
9	107.75	107.72	107.72	*104.44	105.47	107.25	106.63	106.43	107.92	*107.05	106.13	106.69
10	107.83	107.62	107.90	*104.08	105.37	107.29	106.68	106.73	107.93	*107.22	106.50	106.72
11	107.85	107.66	107.44	*103.43	106.11	106.99	106.58	107.05	107.85	107.84	105.96	106.67
12	107.82	107.68	107.35	*103.52	106.77	*106.97	106.72	107.00	107.78	107.37	106.04	107.43
13	107.76	107.54	107.26	*103.85	106.60	*107.18	107.00	*106.70	107.75	107.33	106.45	107.31
14	107.70	107.47	107.16	*104.23	106.24	107.24	107.13	*106.68	107.82	107.01	106.81	107.21
15	107.66	*107.48	107.29	*103.64	105.87	107.39	106.85	106.51	107.74	106.55	106.69	107.38
16	107.66	*107.46	107.44	*103.25	105.91	107.44	106.92	106.56	107.63	106.36	106.91	107.54
17	107.66	*107.58	107.76	*103.38	106.23	*107.15	106.78	106.71	107.45	*106.54	107.15	*107.29
18	107.72	*107.52	107.54	*104.00	106.64	*106.75	106.85	107.18	107.67	106.58	106.91	107.40
19	107.78	107.74	107.42	*104.82	*107.10	106.74	107.29	106.92	108.70	106.72	106.62	107.69
20	107.88	107.83	107.20	105.48	*107.15	106.64	107.28	*106.74	108.51	106.83	106.30	108.06
21	107.82	107.80	106.90	106.09	106.82	106.49	107.64	*106.81	108.67	106.60	106.06	108.21
22	107.70	107.80	106.89	105.65	107.11	106.45	107.50	*106.87	*108.72	106.40	106.32	108.32
23	107.84	108.05	106.97	105.42	107.35	106.81	107.16	107.02	*108.40	106.26	106.60	108.10
24	107.77	108.16	107.01	105.49	107.50	106.83	107.00	107.30	108.14	106.12	106.88	108.08
25	107.74	107.86	106.60	105.36	107.73	106.40	107.00	107.37	107.89	106.24	106.85	108.29
26	107.89	107.78	106.58	105.38	107.97	*106.54	107.05	107.41	107.63	106.23	107.61	108.05
27	107.98	107.71	106.16	106.07	107.60	106.77	107.12	107.25	108.00	106.24	107.97	107.87
28	107.82	107.70	105.90	106.32	107.22	106.79	107.21	107.17	108.68	106.04	108.28	107.74
29	107.79		105.34	105.56	107.36	106.82	107.04	107.26	108.65	105.88	108.12	107.78
30	107.68		105.54	105.17	107.47	107.06	106.75	107.51	108.52	105.58	108.00	107.48
31	107.44		106.48		107.58		106.78	*107.67		105.70		107.54
Avg.	107.77	107.72	107.24	104.94	106.44	107.11	106.94	106.92	108.03	106.85	106.65	107.39

* Partly estimated

* Estimated

ELEVEN MILE WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway for discharging water from the West Main Canal to the Colorado River. This wasteway is located in Arizona, 4.3 miles (6.9 km) downstream from the northerly international boundary and 3.2 miles (5.1 km) downstream from Morelos Diversion Dam. It is the largest of three wasteways discharging waste water from the Valley Division of the Yuma Project in the United States into the limitrophe section of the Colorado River.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1985, obtained by the United States Section; monthly discharge, January 1924 through 1950 by Bureau of Reclamation.

EXTREMES: Prior to January 1951, maximum monthly discharge, 9,740 acre-feet (12,014,000 m³) in August 1940; minimum monthly discharge, zero in April 1941. Since January 1, 1951, maximum instantaneous discharge, 800 second-feet (22.7 m³/sec) on December 3, 1961, at a maximum gage height of 117.60 feet (35.84 m); minimum instantaneous discharge, zero during parts of most years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0.5	0.2	12.6	0.8	10.0	0.2	0.4	2.3	6.7	0.2	1.0
2	.1	3.3	.5	3.2	.6	.9	.4	.4	.6	.8	2.8	.4
3	0	28.7	41.3	2.1	.4	.3	.4	.4	.6	2.2	65.1	.2
4	.1	52.3	25.6	.2	.6	1.2	.4	39.2	.5	1.4	24.0	.8
5	1.3	3.9	3.5	.2	30.1	.4	.4	30.3	.4	1.7	3.0	1.4
6	.1	2.7	2.6	.2	21.6	1.6	.4	4.1	.3	2.6	2.1	.2
7	1.5	.2	.2	.2	3.5	2.6	.4	2.8	1.8	4.2	.1	.4
8	3.6	1.9	.2	.4	2.8	.4	.4	.2	.4	.5	.5	34.8
9	.1	.4	.2	.4	.2	.3	.3	.2	.3	2.0	.4	26.0
10	.2	.5	.2	.9	.2	.4	1.0	.3	.5	11.1	.1	2.8
11	1.5	* .2	.5	.4	.2	.4	.4	* .2	.2	.5	.9	1.4
12	1.2	* .2	1.3	.3	.1	.4	.4	* .2	.2	1.6	.6	1.2
13	.8	.1	3.2	.3	.1	1.6	.3	* .2	1.4	2.7	.5	.8
14	.3	.2	1.1	.3	.2	3.3	.2	.1	.3	1.0	.4	0
15	.5	.6	1.2	1.1	.2	.4	.3	* .1	.2	.3	1.0	2.6
16	2.3	.4	.4	.2	.2	.3	.4	* .2	.3	.3	.7	3.7
17	.4	.1	.1	.5	.4	.3	.4	.1	.3	.3	5.1	.6
18	.2	1.1	.2	.4	.5	1.0	.4	.1	.8	.1	.8	.4
19	.2	.2	1.5	1.4	.3	.4	.4	.3	.8	.1	0	.6
20	.6	.2	.2	2.0	.5	.4	.3	.1	1.6	.2	.2	.6
21	.4	.2	.3	2.5	.3	.6	.3	.1	1.3	.1	1.6	.6
22	1.0	1.8	.6	1.0	.9	.4	.2	.7	.6	1.8	.7	.2
23	.3	1.1	.5	2.6	.4	.5	.1	.5	2.4	0	1.0	2.9
24	.1	.1	.3	.9	.3	3.2	.1	0	1.7	.9	2.3	0
25	.4	1.4	.8	.5	.3	.4	.1	.2	.9	.4	1.7	.1
26	.5	.5	3.0	.5	.4	.4	.2	5.8	1.7	.3	.5	0
27	.4	1.1	1.7	.5	.7	.3	.3	.3	6.0	1.2	.2	0
28	1.9	.3	.5	.4	.4	1.5	.2	.4	13.6	.5	.1	.2
29	5.9	.6	.4	1.0	.3	.3	* .2	4.6	3.0	.3	.2	.3
30	.3	.6	1.7	1.3	.2	.2	* .3	1.6	.3	1.7	1.8	.1
31	.6	28.9	.6	.6	.6	.5	.5	1.5	.3	.3	.3	.3
Sum	26.9	104.2	122.0	38.3	70.1	34.4	10.2	95.6	45.3	47.8	118.6	84.6
Current Year 1985												
Period 1935-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	112.54	111.72	29	39.5	12	0	0.9	53.4	2,632	9,570	0	
Feb.	114.81	111.73	3	180	113	.1	3.7	207	2,152	8,430	14.5	
Mar.	115.44	111.72	3	234	117	0	3.9	242	2,027	6,230	59.1	
Apr.	113.04	111.74	1	73.9	13	.1	1.3	76.0	1,875	6,300	0	
May	115.33	111.73	5	223	113	.1	2.3	139	2,217	9,320	8.3	
June	113.10	111.75	1	77.5	116	.2	1.1	68.2	2,114	7,440	10.5	
July	111.97	111.73	10	3.2	123	.1	.3	20.2	2,118	8,320	9.1	
Aug.	115.34	111.72	4	224	124	0	3.1	190	1,836	9,740	64.9	
Sept.	112.63	111.74	28	31.3	12	.1	1.5	89.9	1,323	6,140	6.0	
Oct.	113.58	111.72	1	103	23	0	1.5	94.8	1,805	5,680	11.9	
Nov.	116.04	111.72	3	316	17	0	4.0	235	2,182	8,220	18.8	
Dec.	114.69	111.72	8	171	113	0	2.7	168	2,869	9,430	61.9	
Yearly	116.04	111.72		316		0	2.2	1,584	25,150	82,900	943	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	35.37	34.05		8.95		0	0.06	1,954	31,022	102,255	1,163	

* Estimated

* Partly estimated

1 And other days

COLORADO RIVER AT ELEVEN MILE GAGE - STAGES

DESCRIPTION: Water-stage recorder on the left (Arizona) bank of the river, 4.3 miles (6.9 km) downstream from northerly international boundary, 3.2 miles (5.1 km) downstream from Morelos Diversion Dam, about 50 feet (15 m) downstream from the mouth of Eleven Mile Wasteway of the Yuma Project, and 11 miles (17.7 km) downstream from Yuma, Arizona, along the river levee. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily gage heights based on continuous water-stage records. Records available: Continuous record of gage heights, November 1947 through 1985; once weekly readings obtained by the U. S. Bureau of Reclamation, January 1940 through October 1947.

REMARKS: This station is maintained by the United States Section of the Commission as part of the continuing study of channel conditions in the limitrophe section of the river.

EXTREMES: Since November 1947, maximum mean daily gage height, 108.77 feet (33.15 m) on June 28, 1983; minimum mean daily gage height, 94.95 feet (28.94 m) on June 22, 1968.

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	105.08	104.78	104.65	103.32	102.65	104.92	103.86	103.65	*105.17	105.18	103.24	105.04
2	105.02	104.94	104.71	102.96	102.54	105.20	103.70	103.72	*105.12	104.96	103.43	104.93
3	105.01	105.24	104.90	102.62	102.18	105.10	103.69	103.79	*104.72	104.88	103.67	104.69
4	105.04	105.30	104.84	102.39	102.67	104.80	103.75	104.04	*104.55	104.72	103.66	104.48
5	105.05	105.40	104.73	102.36	103.05	104.58	103.94	103.96	*104.58	104.61	103.40	103.64
6	105.02	105.34	104.78	102.88	102.90	104.41	103.85	*103.65	104.71	104.71	103.45	103.11
7	104.94	105.24	104.65	103.04	102.50	104.43	104.07	*103.75	104.79	104.35	103.21	103.33
8	105.10	105.20	104.40	102.45	102.71	104.39	104.08	*103.61	104.90	104.19	103.01	103.58
9	105.00	105.18	104.34	101.90	102.84	104.35	103.78	103.53	104.80	104.26	103.48	103.99
10	104.97	104.94	104.52	101.68	102.70	104.39	103.80	103.80	104.80	104.37	103.87	104.06
11	105.04	104.90	104.14	101.09	103.24	*104.15	103.72	104.08	104.70	104.83	103.41	103.93
12	105.02	104.94	103.98	101.15	103.80	*104.16	103.78	104.06	104.67	104.51	103.42	104.58
13	105.02	105.06	103.89	101.39	103.99	*104.34	104.03	103.74	104.60	104.47	103.79	104.48
14	104.85	105.00	103.80	101.78	103.51	*104.36	104.15	103.75	104.64	104.22	104.17	104.42
15	104.82	105.01	103.87	101.34	103.15	*104.51	103.88	103.58	104.55	103.86	104.04	104.56
16	104.77	104.96	104.10	100.81	103.17	*104.56	103.93	103.64	104.51	103.67	104.21	104.70
17	104.72	105.08	104.40	101.07	103.30	*104.16	103.81	103.76	104.36	103.77	104.42	104.46
18	104.75	105.00	104.35	101.52	103.70	*103.93	103.88	104.19	104.50	103.81	104.22	104.53
19	104.70	105.12	104.30	102.12	104.03	103.91	104.29	103.95	105.37	103.94	103.96	104.73
20	104.81	105.14	104.22	102.70	104.25	103.82	104.24	103.80	105.16	104.02	103.69	105.01
21	104.76	105.02	104.08	103.32	104.02	103.70	104.56	103.86	105.26	103.84	103.47	105.07
22	104.73	104.91	104.11	103.09	104.10	103.70	104.44	103.92	105.26	103.66	103.67	105.07
23	104.89	105.11	104.13	102.79	104.37	103.96	104.14	104.08	104.98	103.53	103.94	*104.88
24	104.94	105.21	104.13	102.90	104.46	104.01	104.01	104.29	104.79	103.38	104.17	*104.89
25	105.04	104.98	103.78	102.78	104.64	*103.62	104.03	104.37	104.67	103.47	104.16	105.02
26	105.15	104.84	103.80	102.71	104.81	*103.80	104.09	104.39	104.50	103.51	104.80	104.79
27	105.24	104.72	103.52	103.27	104.66	*103.97	104.13	104.24	104.81	103.52	105.06	104.63
28	105.08	104.60	103.31	103.57	104.36	103.95	104.19	104.17	105.35	103.38	105.33	104.50
29	105.04		102.85	102.99	104.45	103.95	104.08	104.26	105.28	103.26	105.18	104.55
30	104.99		102.91	102.54	104.51	104.15	103.82	*104.50	105.18	102.94	105.08	104.38
31	104.91		103.66		104.64		103.81	*104.68		103.06		104.45
Avg.	104.95	105.04	104.12	102.35	103.61	104.24	103.98	103.96	104.84	104.03	103.95	104.47

* Partly estimated

* Estimated

TWENTY-ONE MILE WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir on wasteway from West Main Canal to Colorado River. Located on east side of levee at site used prior to May 1, 1971. The site used May 1, 1971 to September 20, 1977 was located 200 feet (61 m) downstream from present site on west side of levee. This wasteway is located in Arizona, 18.5 miles (29.8 km) downstream from the northerly international boundary, 17.4 miles (28.0 km) downstream from Morelos Diversion Dam, and 2.2 miles (3.5 km) upstream from the southerly international boundary. It is the farthest downstream of the two wasteways discharging waste water from the Valley Division of the Yuma Project in the United States into the limtrophe section of the Colorado River. The elevation of the zero of the gage at the new location has not been determined.

RECORDS: Flow is computed from head on the weir measured by the water-stage recorder and weir rating determined by current meter measurements. Station operated by the United States Section of the Commission. Records available: Daily discharge, January 1951 through 1985, obtained by the United States Section; monthly discharge, March 1939 through 1950, by Bureau of Reclamation.

REMARKS: This wasteway was completed and flow began March 14, 1939. Since May 13, 1944, waste water from the West Main Canal which previously discharged across the southerly land boundary has been returned to the Colorado River through this wasteway. The West Main Canal Wasteway was completed in February of 1971, and the waste water from the West Main Canal is normally discharged across the southerly land boundary.

EXTREMES: Prior to January 1951, maximum monthly discharge 2,860 acre-feet (3,528,000 m³) in January 1946; minimum monthly discharge, 122 acre-feet (150,000 m³) in September 1950. Since January 1, 1951, maximum instantaneous discharge, 102 second-feet (2.89 m³/sec) on January 24, 1954, at a maximum gage height of 95.46 feet (29.10 m) (old datum); minimum instantaneous discharge, zero during a part of most months.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0.2	0.1	0	0	0	0.1	0.2	0.1	0	8.8	■ 15.7
2	0	.1	.1	0	0	0	0	.2	.1	0	.4	■ 15.7
3	0	.1	.1	0	0	0	.1	.1	.1	0	23.8	■ 14.6
4	0	.1	.1	0	0	0	.2	.1	.1	0	15.7	10.9
5	0	0	0	0	0	.1	.2	.1	.1	0	.5	24.2
6	0	0	0	0	0	.4	.2	0	.1	0	0	5.4
7	0	0	0	0	0	.3	.2	0	0	0	0	12.4
8	0	0	0	0	0	.2	.2	.1	0	0	4.9	8.3
9	0	0	0	0	0	.1	.2	.1	0	0	39.6	6.0
10	0	0	0	0	0	.1	.2	.1	0	0	17.4	■ 1.0
11	0	0	0	0	0	.2	.2	.1	0	0	17.2	■ 1.8
12	0	0	0	0	0	.3	.2	0	0	0	11.0	■ 1.8
13	0	0	0	0	0	.3	.2	0	0	0	.1	■ 1.8
14	0	0	0	0	0	.3	.2	.1	0	0	20.1	■ 1.8
15	0	0	0	0	0	.2	.2	0	0	0	9.0	■ 1.8
16	0	0	0	0	0	.2	.2	0	0	0	11.2	■ 1.8
17	0	0	0	0	0	.3	.2	0	0	0	12.3	■ 3.2
18	0	0	0	0	0	.4	.2	0	0	0	10.5	4.0
19	0	0	0	0	0	.4	.2	0	0	0	3.8	■ 14.1
20	0	0	0	0	0	.3	.1	0	0	0	.1	■ 5.8
21	0	0	0	0	0	.2	.1	0	0	0	6.2	■ 6.0
22	0	0	0	0	0	.2	.1	0	0	0	2.0	■ 5.6
23	0	0	0	0	0	.2	.1	0	0	0	6.8	.1
24	0	.1	0	0	0	.1	.1	0	0	0	14.3	.1
25	0	.2	0	0	0	0	.1	.1	0	0	9.1	.1
26	.1	.2	0	0	0	.1	.1	.1	0	0	29.6	.1
27	.1	.2	0	0	0	.2	.1	.1	0	0	17.1	.1
28	.1	.2	0	0	0	.1	.2	0	0	0	8.6	.1
29	0	0	0	0	0	.1	.2	0	0	0	■ 15.7	.1
30	.1	0	0	0	0	.1	.2	0	0	0	■ 15.7	.1
31	.1	0	0	0	0	0	.2	0	0	0	0	.1
Sum	0.5	1.4	0.4	0	0	5.6	5.0	1.5	0.6	0	331.5	164.6
Current Year 1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1939-1985			
	High	Low	Day	High	Day	Low			Acre-Feet			
									Average	Maximum	Minimum	
Jan.	0.04	0	26	0.2	11	0	0	1.0	642	2,860	0	
Feb.	.05	0	124	0.2	11	0	0	2.8	558	2,510	0	
Mar.	.04	0	1	.2	14	0	0	.8	510	1,660	0	
Apr.	0	0	0	0	0	0	0	0	548	1,940	0	
May	0	0	0	0	0	0	0	0	667	2,470	0	
June	.17	0	19	.8	11	0	.2	11.1	582	2,350	0	
July	.07	.01	14	.3	11	0	.2	9.9	504	1,950	0	
Aug.	.05	0	2	.2	16	0	0	3.0	529	2,530	0	
Sept.	.02	0	11	.1	17	0	0	1.2	473	2,180	0	
Oct.	0	0	0	0	0	0	0	0	575	2,100	0	
Nov.	2.70	0	14	76.0	11	0	11.0	658	680	2,380	0	
Dec.	1.71	.01	5	38.7	128	0	5.3	326	741	2,680	0	
Yearly	2.70	0		76.0		0	1.4	1,014	7,009	24,370	0	
Meters												
Cubic Meters per Second												
Thousands of Cubic Meters												
	0.82	0		2.15		0	0.04	1,251	8,645	30,060	0	
■ Estimated ■ Partly estimated ! And other days												

■ Estimated

* Partly estimated

! And other days

EAST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder and control weir located about 300 feet (91.4 m) north of the international boundary near San Luis, Arizona and 1.5 miles (2.4 km) east of the Colorado River. From September 28, 1977 to April 6, 1978, recorder moved west 100 feet (30.5 m) to a temporary bypass channel. On April 7, 1978 recorder was moved back to original site.

RECORDS: Wasteway discharges computed by United States Section of the Commission beginning November 1, 1953, from head on control weir as measured by water-stage recorder and weir ratings as determined by current meter measurements. Records available: October 1946 through 1985. Records of monthly discharges also are available for the periods January 1924 through June 1928, January 1932 through 1933, and April 1935 through September 1946.

REMARKS: Wasteway discharges from the East Main Canal comprise regulatory waste and drainage waters from the eastern half of the Valley Division of the Yuma Project and are considered as part of the volumes arriving at the limitrophe section of the Colorado River.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.6	4.6	7.5	0.6	24.3	2.6	12.9	1.0	1.2	2.9	11.1	1.4
2	12.4	2.2	9.4	0.4	19.6	3.4	9.7	4.1	0.9	15.7	7.2	2.4
3	9.4	4.2	8.2	2.7	13.2	0.5	7.1	3.5	6.0	6.9	8.8	0.4
4	3.8	3.1	8.0	3.0	13.4	5.6	0.4	2.7	8.2	4.0	21.0	0.2
5	6.1	1.0	1.5	3.6	9.4	0.3	1.7	8.0	6.1	1.9	6.1	0
6	7.3	0.8	0.6	1.7	11.8	2.7	11.3	12.3	4.6	12.2	8.6	0.1
7	2.0	0.8	6.2	1.7	8.9	0.4	10.4	4.3	4.7	7.4	14.4	1.7
8	1.7	3.2	5.0	1.8	4.0	0.1	8.8	1.6	23.0	7.1	16.6	4.5
9	4.2	3.0	17.8	1.6	6.6	0	6.7	0.5	11.2	9.5	6.6	0.5
10	6.3	0.7	3.5	2.7	0.5	0.2	12.2	0.4	4.6	10.5	3.5	0.6
11	8.5	0.5	1.1	4.1	5.3	0.3	3.2	16.8	3.0	12.2	0.3	0.8
12	12.5	2.8	0.5	1.2	25.4	1.8	3.2	6.9	1.0	9.4	0.2	0.4
13	6.6	7.0	6.3	0.5	20.5	4.2	0.4	2.2	3.8	15.0	2.2	0.3
14	6.5	2.6	1.4	1.7	10.6	4.5	0.1	1.2	16.8	14.4	11.2	0.2
15	4.3	5.2	2.1	1.4	15.5	11.5	0	3.2	6.3	7.1	8.4	9.7
16	0.8	1.0	1.7	1.1	22.5	6.5	8.6	10.8	10.7	8.3	8.0	4.2
17	1.7	9.0	0.7	1.3	2.0	2.4	7.0	6.6	9.2	12.0	8.2	8.3
18	10.0	7.7	1.1	0.6	12.0	1.5	3.9	6.5	13.2	2.3	0.7	5.8
19	1.1	3.3	3.5	9.1	15.3	8.2	1.2	6.6	6.8	6.2	2.5	5.8
20	0.5	2.2	1.5	15.8	5.7	8.0	3.7	9.4	0.7	16.2	2.7	7.6
21	5.5	3.1	0.8	11.7	1.6	6.5	15.6	2.6	5.3	5.2	2.0	12.1
22	3.4	3.2	0.4	8.6	1.0	5.0	8.2	5.4	4.8	14.1	3.5	1.1
23	4.3	7.8	3.7	2.1	1.9	3.2	8.9	11.8	3.3	8.1	7.4	1.9
24	6.0	7.6	5.5	2.5	11.4	3.0	0.7	8.4	7.9	12.4	4.8	5.8
25	1.5	4.6	7.2	5.7	10.3	3.1	2.6	8.3	9.4	18.1	2.0	6.1
26	4.3	5.7	3.1	6.4	14.3	17.3	0.6	8.6	11.0	16.6	7.2	3.8
27	16.1	5.2	7.9	5.7	3.7	8.4	0.1	14.9	9.4	13.1	9.0	3.2
28	13.8	5.6	0.6	1.2	1.7	8.8	6.9	7.8	9.3	7.6	4.3	2.2
29	2.7	0	0.5	0.7	9.6	6.7	5.1	6.0	23.8	2.0	5.6	0.8
30	7.0	4.6	15.5	4.4	12.4	8.2	15.8	9.7	12.5	5.6	0.6	2.5
31	4.1	0.7	0.7	10.1		9.2	4.5				6.5	
Sum	188.0	107.7	122.6	116.7	310.5	139.1	178.6	202.7	235.9	296.5	194.7	100.9

Current Year 1985							Period 1935-1985			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day			Average	Maximum	Minimum
Jan.	0.93	0.05	22	30.3	117	6.1	373	1,006	3,360	90.0
Feb.	1.12	.05	15	40.5	110	0.5	214	845	3,170	133
Mar.	1.10	.01	30	39.4	113	0.1	243	971	2,920	154
Apr.	1.29	0	30	50.2	13	0	3.9	231	945	175
May	1.09	.01	14	38.9	11	0.1	616	1,051	3,040	228
June	1.13	0	19	41.4	1.8	0	4.6	276	892	161
July	1.15	0	1	42.2	1.5	0	5.8	354	960	170
Aug.	.91	.04	11	29.2	110	0.4	6.5	402	981	159
Sept.	.98	.04	8	32.9	120	0.4	7.9	468	933	307
Oct.	.97	.05	25	32.4	16	0.5	9.6	588	977	241
Nov.	1.00	0	4	34.0	13	0	6.5	386	1,054	200
Dec.	.86	0	15	26.6	15	0	3.3	200	1,018	3,080
Yearly	1.29	0		50.2		0	6.0	4,351	11,633	38,310
	Meters		Cubic Meters per Second				Thousands of Cubic Meters			
	0.39	0		1.42		0	0.17	5,367	14,349	47,255
										3,733

■ Estimated

■ Partly estimated

! And other days

YUMA MAIN DRAIN (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorders located in the forebay and afterbay, with flow meters in the four discharge pipes at the Boundary Pumping Plant on the Main Drain about 200 feet (61 m) north of the international boundary near San Luis, Arizona, 1.3 miles (2.1 km) east of the Colorado River.

RECORDS: Main Drain discharges are lifted 10 (3.05) to 12 feet (3.66 m) at the pumping plant. Prior to April 1, 1969, discharges were computed from pump ratings and the differential head measured by the two gages. Beginning April 1, 1969 discharges were computed from flow meter charts. Pump ratings and flow meter discharges are checked by current meter measurements. Records obtained and computed by the United States Section of the Commission. Records available: Monthly discharges, June 1919 through 1951; daily discharges January 1952 through 1995.

REMARKS: Flows in the Main Drain are principally drainage waters from the Valley Division of the Yuma Project. The Main Drain, the East Main Canal Wasteway, West Main Canal Wasteway, and 242 Lateral discharge into Mexico at the international land boundary near San Luis, Sonora. The water is used for irrigation in Mexico on the left (Sonora) bank of the Colorado River and is considered as part of the volumes arriving at the limitrophe section of the river.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	121	123	129	134	135	119	128	143	132	135	171	150
2	119	130	126	119	126	130	126	151	126	137	171	156
3	109	123	135	117	121	131	126	146	127	140	161	160
4	115	115	133	125	138	126	134	141	135	102	151	157
5	117	121	125	118	144	123	123	150	137	127	166	161
6	110	109	119	135	140	127	126	143	133	150	168	165
7	120	120	123	133	131	134	127	145	133	152	161	160
8	119	110	132	134	119	133	117	111	140	158	184	171
9	122	128	131	122	124	136	116	140	148	166	219	165
10	113	115	129	116	116	134	130	146	134	165	168	156
11	115	115	124	128	129	121	133	170	120	155	182	156
12	117	114	122	128	134	121	139	145	138	162	182	129
13	107	117	109	134	138	140	159	148	134	165	177	132
14	111	117	118	139	122	147	159	132	134	162	185	134
15	115	118	128	162	123	136	144	137	129	166	177	144
16	125	132	123	122	114	132	138	143	135	140	182	158
17	118	124	140	125	121	136	138	148	133	126	206	149
18	113	116	143	123	133	136	143	149	137	149	179	149
19	114	117	123	124	147	126	143	146	97.7	160	169	153
20	110	114	122	125	135	139	145	140	106	160	163	156
21	110	113	119	131	106	133	135	136	121	179	145	162
22	114	122	126	137	117	135	141	142	123	168	165	167
23	111	118	121	123	117	138	137	138	132	167	175	156
24	123	126	122	127	129	134	142	143	127	178	176	153
25	118	131	132	132	132	128	141	141	128	187	180	142
26	122	129	141	138	137	125	147	144	132	176	175	158
27	131	118	130	131	123	132	145	140	107	182	145	143
28	114	135	137	134	137	128	139	131	120	174	155	143
29	115	122	144	124	142	138	138	135	158	177	165	147
30	109	133	135	138	142	142	141	134	140	152	152	151
31	130	128		124			138	139		183		153
Sum	3,607	3,370	3,945	3,895	3,974	3,964	4,238	4,397	3,896.7	4,900	5,155	4,736

Current Year 1985								Period 1935-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			27	131	13	107	116	7,154	7,559	11,203	1,740
Feb.			28	135	6	109	120	6,684	7,423	11,988	1,640
Mar.			18	143	13	109	127	7,825	8,534	12,430	1,940
Apr.			15	162	10	116	130	7,726	8,389	11,890	1,920
May			19	147	21	106	128	7,882	8,597	13,140	1,950
June			14	147	1	119	132	7,862	8,005	12,040	2,290
July			113	159	9	116	137	8,406	7,957	11,830	2,530
Aug.			11	170	8	111	142	8,721	7,929	11,960	2,560
Sept.			29	158	19	97.7	130	7,729	7,894	11,568	2,280
Oct.			25	187	4	102	158	9,719	8,804	12,385	2,940
Nov.			9	219	121	145	172	10,225	8,408	12,010	2,800
Dec.			8	171	12	129	153	9,394	8,058	11,480	2,450
Yearly				219		97.7	137	99,327	97,557	139,380	27,040
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
				6.20		2.77	3.88	122,518	120,335	171,922	33,353

0 Mean daily

1 And other days

WEST MAIN CANAL WASTEWAY (VALLEY DIVISION, YUMA PROJECT)

DESCRIPTION: Water-stage recorder located about 0.3 mile (0.5 km) upstream from outlet to Yuma Main Drain, which is 175 feet (53.3 m) upstream from East Main Canal Wasteway outlet and 0.4 mile (0.6 km) west of San Luis, Arizona. Prior to August 1, 1975, the recorder was located about 150 feet (45.7 m) upstream from outlet to Yuma Main Drain.

RECORDS: Wasteway discharges computed by United States Section of the Commission beginning February 23, 1971, from water-stage recorder and ratings as determined by current meter measurements. Records available: February 23, 1971 through 1985.

REMARKS: Wasteway discharges from West Main Canal Wasteway comprise regulatory waste from the West Main Canal.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.1	3.0	1.3	18.1	2.8	2.6	9.0	0.6	7.4	3.3	7.0	0.4
2	3.6	12.7	7.2	2.8	1.2	15.0	4.0	.5	15.4	.5	1.7	.4
3	3.2	15.6	13.2	1.2	8.6	3.9	2.9	10.3	2.5	3.4	9.9	.4
4	2.4	21.6	20.4	1.1	3.1	3.2	5.7	8.2	4.4	11.0	16.3	.3
5	2.8	4.7	3.1	4.2	23.3	6.1	3.6	19.1	2.1	3.1	2.2	.4
6	8.9	1.4	1.2	3.7	28.6	2.7	2.8	2.1	5.6	6.7	.9	.3
7	4.9	1.2	2.9	.9	3.4	1.3	4.9	.8	7.5	13.0	3.2	.3
8	6.3	2.0	10.5	4.1	.8	4.6	5.5	4.5	9.0	.2	8.7	.3
9	6.7	9.6	12.7	.7	2.0	10.7	3.2	2.9	6.0	.4	.2	.3
10	5.7	7.0	9.8	1.2	.3	8.0	3.1	3.3	6.7	11.6	.1	.2
11	4.5	14.7	2.6	3.0	1.9	10.2	3.2	3.8	1.3	9.8	0	.3
12	1.6	2.3	6.6	4.3	1.9	4.5	5.6	7.4	6.8	22.9	.9	.2
13	10.5	4.0	6.8	.6	2.3	8.1	5.7	6.9	6.3	8.1	.5	.2
14	4.8	2.9	3.1	.3	1.7	10.3	5.1	2.6	5.2	2.6	.6	.2
15	3.9	1.9	2.1	4.2	1.2	10.0	4.2	2.5	2.1	.3	.5	.2
16	6.8	7.5	3.4	.4	2.8	1.4	3.4	.4	3.4	.2	.2	0
17	5.2	7.6	11.9	.8	8.4	2.5	4.4	4.6	2.8	2.5	.2	.3
18	9.7	13.3	5.8	.8	4.0	4.9	9.6	4.3	14.4	3.2	.5	.2
19	5.0	7.6	4.8	1.6	5.6	1.3	10.0	4.6	8.3	7.1	2.4	.3
20	2.7	5.5	10.0	9.3	4.9	.3	15.4	2.9	6.6	13.0	1.8	4.4
21	1.6	8.4	4.5	12.4	2.2	3.8	7.6	4.0	11.6	12.1	4.5	3.2
22	1.1	9.6	3.4	13.2	2.7	3.8	5.2	5.3	4.7	1.6	1.5	4.3
23	2.1	10.9	3.1	18.8	7.2	4.6	2.5	3.8	2.2	.1	1.3	9.7
24	1.7	5.3	3.4	1.6	1.6	10.7	3.7	7.3	6.0	8.6	.4	7.7
25	4.0	4.4	2.1	5.8	3.2	3.9	1.1	5.2	12.2	10.0	.4	13.3
26	7.5	2.2	2.8	8.4	13.1	1.4	.7	2.2	9.4	11.6	1.3	8.7
27	8.8	.6	7.9	9.1	16.7	.3	2.2	7.0	7.2	21.4	.5	2.2
28	1.9	1.6	2.0	.6	16.2	3.9	.6	5.5	13.4	9.2	.4	1.5
29	.7		3.6	3.0	6.8	4.0	.6	1.9	20.5	3.7	.4	1.6
30	.3		3.1	1.3	.4	3.8	2.1	7.5	3.0	4.3	.4	1.0
31	4.2		8.8		.4		1.8	7.2		8.5		.3
Sum	137.2	189.1	184.1	137.5	179.3	151.8	139.4	149.2	214.0	214.0	68.9	63.1
Current Year 1985										Period 1971-1985		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.75	0	13	25.2	30	0	4.4	272	346	565	125	
Feb.	1.96	.01	1	31.5	116	0	6.8	375	430	681	164	
Mar.	1.93	0	3	30.6	128	0	5.9	365	464	939	203	
Apr.	1.87	0	23	28.8	17	0	4.6	273	351	664	164	
May	2.25	.02	6	40.6	10	.1	5.8	356	296	434	148	
June	1.95	.04	14	31.2	7	.2	5.1	301	294	480	96.6	
July	2.00	.03	116	32.7	1	.2	4.5	276	293	556	93.2	
Aug.	2.06	.03	5	34.6	1	.2	4.8	296	303	536	98.0	
Sept.	2.13	.03	29	36.8	12	.2	7.1	424	365	768	190	
Oct.	2.01	.02	12	33.0	1	.1	6.9	424	369	728	133	
Nov.	1.77	0	8	25.8	111	0	2.3	137	355	541	137	
Dec.	1.68	0	23	23.2	116	0	2.0	125	360	610	125	
Yearly	2.25	0		40.6		0	5.0	3,624	4,226	6,229	2,829	
Meters		Cubic Meters per Second				Thousands of Cubic Meters						
0.69		0		1.15		0	0.14	4,470	5,213	7,683	3,490	

1 And other days

242 WELL FIELD NEAR SAN LUIS, ARIZONA

DESCRIPTION: Water-stage recorder and 12-foot (3.7 m) Parshall flume located 100 feet (30.5 m) upstream from confluence of East Main Canal Wasteway, 110 feet (33.5 m) north of the southerly land boundary, and 1.4 miles (2.3 km) east of the Colorado River.

RECORDS: Based on current meter measurements and a continuous record of gage heights. The station is operated by the United States Section of the Commission. Records available: October 18, 1978 through 1985.

REMARKS: Records show the pumping of ground water from the 242 well field east of San Luis, Arizona.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	4.6	0.1	0	0	0	0.1	0.6	4.9	3.8	0	0
2	0	4.1	0	0	2.1	0	0	.7	5.2	3.2	0	0
3	0	5.9	0	0	5.8	2.4	0	.1	5.4	.7	0	0
4	0	28.2	0	0	5.2	4.0	0	0	5.4	.2	0	0
5	0	42.9	0	0	.2	.2	0	0	4.3	0	* 13.1	0
6	0	41.1	0	0	0	0	0	0	.8	0	* 1.7	0
7	0	42.0	0	0	0	0	.3	0	.5	0	* 8.5	0
8	0	40.1	.9	0	0	0	3.9	.5	0	0	* 10.0	0
9	2.5	40.7	.4	0	0	0	5.7	6.0	0	0	* 5.0	0
10	4.5	40.7	0	0	0	0	4.5	7.2	.1	0	* 5.0	0
11	.1	40.7	0	0	0	0	5.0	6.4	4.5	0	* 5.0	0
12	0	39.7	0	1.8	0	0	5.5	5.4	6.1	0	* 1.4	0
13	0	39.8	0	3.6	0	1.8	5.7	6.2	6.8	0	0	.9
14	0	39.3	0	.1	2.2	4.0	5.8	5.6	4.7	0	1.8	0
15	0	22.4	0	0	5.2	.2	6.6	6.3	.4	0	8.2	0
16	0	8.0	0	0	.2	0	9.0	4.3	0	0	5.8	0
17	0	8.1	1.5	0	0	0	8.3	7.3	0	0	.7	0
18	0	8.0	6.6	0	0	0	9.1	4.1	1.3	0	.2	0
19	0	7.8	4.6	0	0	.3	9.3	4.8	.6	0	0	0
20	0	4.7	.4	0	0	0	9.7	4.8	.4	3.7	0	0
21	0	.4	0	0	0	1.0	9.7	5.0	.8	7.2	0	0
22	1.6	0	0	0	0	3.2	7.7	2.0	.1	7.4	0	0
23	3.3	0	0	2.2	2.4	.4	2.4	4.5	0	5.3	0	0
24	.2	0	0	5.2	3.9	0	7.2	.7	1.3	.8	0	0
25	0	0	0	.2	0	0	7.3	0	3.9	.4	0	0
26	0	2.8	0	0	.3	0	5.6	0	3.9	.4	0	0
27	0	4.6	0	0	0	0	3.3	0	3.9	.1	0	0
28	0	.4	0	0	.4	1.7	3.4	0	3.9	.4	0	0
29	0	0	2.6	0	0	4.3	6.8	0	3.9	4.0	0	0
30	1.1	0	3.9	0	0	.7	5.4	0	3.9	.7	0	0
31	3.0	0	.2	0	0	0	.7	1.1	0	.4	0	0
Sum	16.4	517.0	21.2	13.1	27.9	24.2	148.0	83.6	77.0	38.7	67.3	0
Current Year 1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1979-1985			
	High	Low	Day	High	Day	Low			Acre-Feet			
									Average	Maximum	Minimum	
Jan.	0.33	0	10	6.7	1 1	0	0.5	32.5	507	2,761	0	
Feb.	.97	0	1 4	44.1	122	0	18.5	1,025	578	2,257	0	
Mar.	.31	0	118	7.6	1 1	0	.7	42.0	430	2,132	0	
Apr.	.30	0	123	7.2	1 1	0	.4	26.0	512	2,681	0	
May	.31	0	24	7.6	1 1	0	.9	55.3	919	2,750	11.3	
June	.28	0	3	6.7	1 1	0	.8	48.0	874	2,800	21.4	
July	.44	0	8	12.4	1 1	0	4.8	294	900	3,020	16.3	
Aug.	.35	0	14	9.0	1 3	0	2.7	166	659	2,326	0	
Sept.	.30	0	13	7.2	1 8	0	2.6	153	815	2,073	0	
Oct.	.31	0	120	7.6	1 5	0	1.2	76.8	654	2,711	0	
Nov.	* .81	0	5	33.2	1 1	0	2.2	133	208	1,011	0	
Dec.	0	0				0	0	0	590	2,962	0	
Yearly	0.97	0		44.1		0	2.8	2,052	7,646	23,566	163	
Thousands of Cubic Meters												
Meters		Cubic Meters per Second										
0.30		0		1.25		0	0.08	2,531	9,431	29,068	201	

* Partly estimated

1 And other days

TOTAL FLOWS CROSSING INTERNATIONAL BOUNDARY INTO MEXICO NEAR SAN LUIS, SONORA

DESCRIPTION: The tabulated data below are the combined flows of the East Main Canal Wasteway, West Main Canal Wasteway, 242 Lateral, and the Yuma Main Drain and represent the total water crossing the international land boundary into the Sanchez Mejorada Canal near San Luis, Arizona.

RECORDS: Records obtained and computed by the United States Section of the Commission. Records available: February 23, 1971 through 1985; 242 Lateral from November 1978 through 1985.

REMARKS: Descriptions and flows of the individual stations, East Main Canal Wasteway, West Main Canal Wasteway, the Yuma Main Drain, and 242 Lateral are published separately in this bulletin on pages 28, 30, 29, and 31.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	139	135	138	153	162	124	150	145	146	145	189	152
2	135	149	143	122	149	148	140	156	148	156	180	159
3	122	149	156	121	149	138	136	160	141	151	180	161
4	121	168	161	129	160	139	140	152	153	117	188	158
5	126	170	130	126	177	130	128	177	150	132	187	161
6	126	152	121	140	180	132	140	157	144	169	179	165
7	127	164	132	136	143	136	143	150	146	172	187	162
8	127	155	148	140	124	138	135	118	172	165	219	176
9	135	181	162	124	127	147	132	149	165	176	231	166
10	130	163	142	120	117	142	150	157	145	187	177	157
11	128	171	128	135	136	132	144	197	129	177	187	157
12	131	159	129	135	161	127	153	165	152	194	184	130
13	124	168	122	139	161	154	171	163	151	188	181	132
14	122	162	122	141	136	166	170	141	161	179	199	134
15	123	148	132	168	145	158	155	149	138	173	194	154
16	133	148	128	124	140	140	159	158	149	148	196	162
17	125	149	154	127	131	141	158	166	145	140	215	158
18	133	145	156	124	149	142	166	164	166	154	180	155
19	120	136	136	135	168	136	164	162	113	173	174	159
20	113	126	134	150	146	147	174	157	114	193	168	168
21	117	125	124	155	110	144	168	148	139	204	152	177
22	120	135	130	159	121	147	162	155	133	191	170	172
23	121	137	128	146	128	146	151	158	138	180	184	168
24	131	139	131	136	146	148	154	159	142	200	181	166
25	124	140	141	144	146	135	152	154	154	216	182	161
26	134	140	147	153	165	144	154	155	156	205	184	170
27	156	128	146	146	143	141	151	162	128	217	154	148
28	130	143	140	136	155	142	150	144	147	191	160	147
29	118		129	148	140	157	150	143	206	187	171	149
30	117		145	152	143	159	157	157	157	163	153	154
31	141		138		134		150	152		204		160
Sum	3,949	4,185	4,273	4,164	4,492	4,280	4,707	4,830	4,428	5,447	5,486	4,898
Current Year 1985								Period 1935-1985				
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Average	Maximum	Minimum		
Jan.			27	156	20	113	127	7,832	9,418	12,131	2,123	
Feb.			9	181	21	125	149	8,298	9,276	12,970	2,023	
Mar.			9	162	6	121	138	8,475	10,399	13,704	2,322	
Apr.			15	168	10	120	139	8,256	10,197	12,982	2,117	
May			6	180	21	110	145	8,909	10,863	13,900	2,473	
June			14	166	1	124	143	8,487	10,065	12,570	2,525	
July			20	174	5	128	152	9,330	10,110	12,420	2,927	
Aug.			11	197	8	118	156	9,585	9,872	12,657	2,989	
Sept.			29	206	19	113	147	8,774	10,007	12,450	2,602	
Oct.			27	217	4	117	176	10,808	10,804	13,898	3,444	
Nov.			9	231	21	152	183	10,881	10,025	12,712	3,407	
Dec.			21	177	12	130	158	9,719	10,026	12,050	2,888	
Yearly				231		110	151	109,354	121,062	149,010	31,840	
Meters		Cubic Meters per Second					Thousands of Cubic Meters					
				6.54		3.12	4.28	134,886	149,328	183,802	39,274	

0 Mean daily

* Partly estimated

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - DISCHARGES

DESCRIPTION: Water-stage recorder was located in Mexico on the right bank of the river about 1,000 feet (305 m) upstream from the southerly international boundary, 2 miles (3.2 km) west of San Luis, Arizona, and 21.9 miles (35.2 km) downstream from Morelos Dam. The zero of the gage was at mean sea level, U. S. C. & G. S. datum. This gage was destroyed on January 19, 1983. Temporary gages have been installed on the United States side and levels were established to insure continuous record. On December 10, 1985 a permanent water-stage recorder was relocated on the left bank of the river about 80 feet (24.4 m) upstream from the southerly international boundary.

RECORDS: Records obtained and furnished by the United States Section of the Commission. Computations by shifting control methods. Records available: Daily discharges, January 1950 through 1985; continuous record of gage heights, January 1947 through 1985. Monthly flows for this station have been derived for the period January 1935 through 1949 based on the computed records of monthly flows of the Colorado River at the northerly international boundary combined with the measured monthly flows from the wasteways discharging into the boundary section of the river from the Yuma Project in Arizona.

REMARKS: Reservoirs, diversions in the United States and Mexico, drainage returns, and waste flows modify the river flow at this station.

EXTREMES: Since January 1950: Maximum instantaneous discharge, 33,100 second-feet (937 m³/sec) on August 19, 1983; maximum gage height, 84.84 feet (25.86 m) on November 29, 1957. Minimum discharge, no flow on several occasions since September 1, 1956.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	21,700	17,100	18,800	9,600	7,980	13,800	10,800	10,500	12,400	14,400	8,510	12,500
2	21,400	17,200	19,000	8,690	7,950	15,100	10,200	10,100	13,600	14,100	8,990	12,300
3	21,200	19,100	18,800	8,290	7,090	10,400	10,300	12,800	13,200	9,360	11,900	12,000
4	21,300	21,700	18,600	7,770	7,890	14,800	10,400	10,600	12,600	12,500	9,570	12,000
5	21,100	22,800	18,100	7,540	9,510	13,800	10,500	11,100	12,400	12,200	9,100	11,100
6	20,900	23,100	18,000	8,140	8,130	13,100	10,500	10,200	12,600	12,200	8,980	9,980
7	20,300	23,500	17,700	8,950	7,520	12,800	10,400	10,200	12,800	12,000	8,730	10,200
8	21,000	23,400	16,400	8,500	7,890	12,700	10,900	10,100	13,100	11,200	8,190	10,300
9	21,400	23,400	16,100	8,220	8,120	12,400	10,400	9,840	13,200	11,100	8,710	10,700
10	21,400	23,100	16,400	7,580	7,890	12,700	10,400	10,100	12,900	11,000	9,520	10,900
11	21,200	22,900	15,800	6,820	9,300	12,100	10,400	10,700	12,800	12,000	9,540	10,800
12	21,100	23,100	14,600	5,910	10,200	11,900	10,300	11,200	12,600	11,700	9,350	12,200
13	21,100	22,200	14,600	6,300	10,200	12,300	10,700	10,400	12,600	10,900	9,660	12,300
14	20,900	20,800	14,700	6,730	9,840	12,600	11,100	10,300	12,700	10,400	10,200	12,100
15	20,800	20,000	14,700	6,900	9,170	12,500	11,100	9,980	12,600	9,710	10,400	12,600
16	19,500	20,000	14,800	5,660	9,420	12,500	10,500	9,840	12,500	9,340	10,600	13,200
17	19,500	20,300	14,300	5,420	9,270	12,300	10,700	10,000	11,900	9,080	11,000	12,700
18	19,600	19,700	14,000	5,890	10,400	11,200	10,600	10,600	11,900	9,350	11,000	12,700
19	19,600	19,300	13,300	7,440	11,200	10,900	11,200	11,000	14,500	9,570	10,600	13,100
20	19,300	19,100	12,500	8,290	11,800	10,800	11,600	10,200	15,100	9,460	10,200	13,600
21	19,200	18,900	12,000	8,720	11,300	10,200	12,000	10,300	15,400	9,570	9,640	14,000
22	18,400	18,300	12,000	8,240	11,500	9,800	12,500	10,200	15,800	9,460	9,750	14,300
23	18,500	19,400	12,000	7,620	12,300	10,100	11,600	10,300	15,300	9,180	10,200	15,000
24	18,300	20,900	12,300	8,270	12,700	10,500	11,000	10,800	14,200	9,050	10,500	15,000
25	17,900	20,600	12,100	8,370	13,200	10,100	10,800	11,100	13,500	9,260	10,400	15,600
26	18,400	20,400	12,100	8,280	13,600	9,660	10,800	11,300	12,700	9,260	11,000	15,400
27	19,200	19,500	11,300	8,820	12,400	10,400	11,000	10,800	12,500	9,120	12,000	14,800
28	18,600	18,100	10,700	9,390	12,400	10,700	11,100	10,700	14,600	9,100	12,900	14,600
29	18,300		10,100	8,850	12,500	10,900	11,600	10,700	14,800	8,960	13,500	14,700
30	18,400		9,510	7,840	12,900	10,900	10,700	10,900	14,600	8,290	13,200	14,300
31	17,900		10,000		13,200		10,600	11,600		8,390		13,900
Sum	617,400	577,900	445,310	233,040	318,770	359,060	336,800	325,960	401,400	325,050	305,300	398,780
Current Year 1985												
Period 1935-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	84.22	82.49	1	21,800	31	17,400	19,900	1,224,595	367,305	1,672,000	0	
Feb.	83.16	82.02	7	23,500	1	17,000	20,600	1,146,248	302,934	1,385,000	0	
Mar.	82.49	80.61	2	19,200	30	9,310	14,400	883,259	245,277	1,127,000	798	
Apr.	81.95	80.48	1	10,600	16	5,260	7,770	462,228	164,632	1,758,202	0	
May	82.67	81.08	27	13,800	3	6,850	10,300	632,271	227,313	1,160,000	0	
June	82.92	81.53	12	15,600	26	9,420	12,000	712,185	196,992	1,180,000	0	
July	82.71	81.88	31	12,600	1	10,000	10,900	668,033	171,988	1,477,091	0	
Aug.	82.73	82.01	22	11,600	16	9,760	10,500	646,532	187,643	1,705,190	0	
Sept.	83.44	82.55	22	15,800	17	11,700	13,400	796,165	210,390	1,586,308	0	
Oct.	83.03	81.25	1	14,600	30	8,120	10,500	644,727	251,124	1,738,909	0	
Nov.	82.44	81.50	29	13,700	8	8,100	10,200	605,554	296,283	1,428,000	0	
Dec.	82.28	78.15	125	15,700	6	9,870	12,900	790,969	360,144	1,839,000	0	
Yearly	84.22	78.15		23,500		5,260	12,700	9,212,766	2,982,025	12,692,946	9,570	
Meters												
Cubic Meters per Second												
Thousands of Cubic Meters												
Yearly	25.67	23.82		666		149	360	11,363,763	3,678,268	15,656,495	11,804	

* Estimated

* Partly estimated

! And other days

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY - STAGES

(See Preceding Page For Description)

MEAN DAILY GAGE HEIGHT IN FEET 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	84.21	82.42	82.31	81.07	81.43	82.63	82.05	82.16	82.86	82.93	81.62	82.10
2	84.11	82.44	82.43	80.82	81.42	82.84	81.92	82.04	83.08	82.64	81.76	82.00
3	84.00	82.76	82.46	80.70	81.16	82.84	81.99	82.11	82.83	82.29	81.87	81.86
4	83.97	83.05	82.44	80.57	81.40	82.59	82.00	82.19	82.80	82.08	81.92	81.86
5	83.93	82.07	82.39	80.53	81.92	82.44	82.03	82.35	82.76	81.89	81.79	81.61
6	83.87	83.09	82.37	80.76	81.60	82.34	82.01	82.09	82.83	81.83	81.76	81.32
7	83.73	83.15	82.32	81.15	81.43	82.31	82.00	82.11	82.90	81.79	81.68	81.40
8	83.87	83.14	82.03	81.10	81.52	82.33	82.11	82.09	82.99	81.57	81.52	81.45
9	83.95	83.13	81.97	81.04	81.58	82.26	81.99	82.02	83.02	81.53	81.68	81.64
10	83.95	82.99	82.05	80.91	81.50	82.32	81.98	82.09	82.97	81.51	81.91	81.72
11	83.93	82.87	82.05	80.76	81.88	82.17	81.98	82.29	82.98	81.77	81.92	78.18
12	83.93	82.78	81.88	80.56	82.09	82.13	81.97	82.46	82.94	81.71	81.86	78.55
13	83.96	82.65	81.88	80.75	82.06	82.22	82.07	82.26	82.93	81.49	81.95	78.57
14	83.96	82.54	81.91	81.00	81.89	82.30	82.18	82.25	82.95	81.36	82.05	78.52
15	83.98	82.41	81.92	81.12	81.64	82.29	82.22	82.17	82.90	81.15	82.06	78.65
16	83.72	82.46	81.95	80.66	81.69	82.29	82.12	82.14	82.88	81.05	82.08	78.81
17	83.71	82.59	81.81	80.57	81.63	82.23	82.18	82.20	82.71	80.98	82.14	78.69
18	83.74	82.53	81.73	80.82	81.88	81.97	82.16	82.37	82.70	81.05	82.09	78.69
19	83.67	82.53	81.55	81.36	82.07	81.96	82.33	82.50	83.22	81.24	81.90	78.78
20	83.55	82.52	81.36	81.62	82.21	81.93	82.45	82.31	83.32	81.36	81.77	78.92
21	83.36	82.46	81.22	81.75	82.01	81.82	82.53	82.35	83.36	81.55	81.62	79.01
22	83.09	82.27	81.22	81.59	82.07	81.74	82.67	82.35	83.43	81.55	81.65	79.08
23	83.09	82.47	81.21	81.35	82.28	81.82	82.44	82.39	83.31	81.48	81.77	79.18
24	82.92	82.67	81.29	81.52	82.39	81.94	82.27	82.52	83.02	81.46	81.85	79.15
25	82.69	82.40	81.24	81.55	82.53	81.82	82.23	82.60	82.85	81.55	81.79	79.28
26	82.76	82.28	81.24	81.52	82.62	81.70	82.22	82.69	82.64	81.60	81.94	79.23
27	82.90	82.20	81.02	81.74	82.56	81.90	82.27	82.58	82.68	81.62	82.11	79.08
28	82.78	82.06	80.85	81.94	82.30	81.99	82.30	82.55	83.13	81.67	82.27	79.02
29	82.71		80.70	81.74	82.33	82.04	82.43	82.52	83.17	81.68	82.39	79.05
30	82.73		80.66	81.39	82.45	82.05	82.18	82.57	83.07	81.54	82.31	78.92
31	82.62		81.05		82.51		82.17	82.70		81.58		78.80
Avg.	83.53	82.64	81.69	81.13	81.94	82.17	82.18	82.32	82.97	81.63	81.90	79.78

* Partly estimated

* Estimated

WELLTON-MOHAWK BYPASS DRAIN AT SOUTHERLY INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder and Parshall flume located 80 feet (24.4 m) upstream from the southerly land boundary, 550 feet (168 m) east of the Colorado River, and 1.8 miles (2.9 km) west of San Luis, Arizona. The zero of the gage has not been determined.

RECORDS: Based on current meter measurements and a continuous record of gage heights. Station is operated by United States Section of the Commission. Records available: June 23, 1977 through 1985.

REMARKS: Pursuant to Minute No. 242 of the Commission, a bypass drain of the Wellton-Mohawk extension channel was constructed from Morelos Dam to the Santa Clara Slough in Mexico along the left bank of the Colorado River.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Annual and Period Summary												
Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	191	204	216	206	222	230	119	130	158	127	161	163
2	189	200	217	209	206	226	118	130	156	148	163	160
3	193	200	218	210	202	227	128	132	146	162	169	160
4	196	198	211	206	202	226	118	136	142	163	171	158
5	195	202	200	202	202	198	130	165	140	163	172	154
6	183	200	198	210	212	196	128	165	148	165	176	160
7	194	203	204	210	217	193	128	169	147	165	178	165
8	193	212	204	210	217	187	132	172	143	164	180	167
9	191	214	204	212	221	189	136	169	142	162	172	165
10	196	210	200	212	217	191	132	165	138	165	169	166
11	194	204	194	214	218	189	141	160	156	165	169	165
12	191	204	197	214	222	185	139	160	157	164	169	165
13	193	210	209	216	224	182	140	164	160	162	169	161
14	196	222	210	222	227	169	140	163	160	160	167	163
15	179	228	212	226	223	160	140	162	158	163	165	163
16	181	226	206	232	224	158	140	160	160	162	165	162
17	181	224	206	228	214	157	142	162	160	159	165	157
18	183	220	208	222	216	140	142	162	165	163	165	156
19	187	218	208	226	212	135	137	150	160	166	166	156
20	185	230	208	230	218	137	139	146	155	166	169	158
21	183	228	210	234	226	127	137	138	151	165	170	158
22	183	220	212	236	232	127	134	141	149	161	170	158
23	185	226	216	234	224	127	137	144	147	160	172	160
24	185	222	216	234	234	126	138	157	145	160	171	164
25	172	222	214	236	233	122	136	160	142	160	174	167
26	198	220	190	236	232	133	137	154	147	160	158	167
27	200	224	170	234	228	119	142	160	146	162	159	170
28	200	226	214	234	226	118	147	156	132	162	163	176
29	200	210	210	221	228	110	149	159	129	161	165	176
30	201	210	210	223	228	118	138	159	129	158	162	174
31	194		210		227		137	162		158		173
Sum	5,892	6,017	6,402	6,639	6,834	4,902	4,201	4,812	4,468	4,981	5,044	5,067
Current Year 1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1977-1985			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.81		30	204	24	165	190	11,687	13,038	17,542	9,241	
Feb.	1.96	1.60	20	234	4	194	215	11,935	12,133	14,896	9,667	
Mar.	1.92	1.50	1 1	226	27	142	207	12,698	13,811	17,427	10,911	
Apr.	2.02	1.82	24	238	5	198	221	13,168	13,678	16,711	11,203	
May	2.03	1.83	22	238	5	198	220	13,555	14,256	16,808	11,560	
June	2.01	1.27	4	234	29	110	163	9,723	12,946	16,086	9,723	
July	1.70	1.19	10	185	10	99.6	136	8,333	13,411	18,026	8,333	
Aug.	1.66	1.37	8	178	1 1	129	155	9,544	13,823	18,196	9,084	
Sept.	1.67	1.43	18	172	28	126	149	8,862	12,726	19,083	6,780	
Oct.	1.64	1.43	1 6	167	1	126	161	9,880	13,336	19,133	6,343	
Nov.	1.71	1.44	1 7	180	26	132	168	10,005	12,328	16,980	6,047	
Dec.	1.70	1.55	127	176	5	151	163	10,050	12,472	18,256	6,216	
Yearly	2.03	1.19		238		99.6	179	129,440	157,958	180,374	125,245	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	0.62	0.36		6.74		2.82	5.07	159,662	194,838	222,488	154,487	

■ Estimated

■ Partly estimated

1 And other days

WASTEWAY TO COLORADO RIVER AT KILOMETER 27 IN MEXICO

DESCRIPTION: Water-stage recorder and cableway located on the left bank of the canal wasteway immediately upstream from where it discharges into the Colorado River, 0.6 mile (1.0 km) downstream from the wasteway gates on the Central Feeder Canal on the right bank of the Colorado River, 16.8 miles (27.0 km) downstream from Morelos Dam, and 820 feet (250 m) south of the junction of the Mexicali-San Luis and Algodones-Pescaderos highways.

RECORDS: Data obtained and computed by the Colorado River Irrigation District of the Ministry of Agriculture and Hydraulic Resources and furnished by the Mexican Section of the Commission. Records shown in table below are waste returns to the Colorado River. Records available: April 1956 through 1985.

REMARKS: The Colorado River Irrigation District transports water for irrigation of land on the left bank of the Colorado River by the Central Feeder Canal to a point called Kilometer 27. At this point, flows may be returned to the river through the wasteway or diverted to the Bacanora-Monumentos Canal system through the Sanchez Mejorada Siphon, which was placed in operation on June 28, 1963. As part of the rehabilitation works, started in 1968, of the Colorado River Irrigation District, the Canal de Conexión was enlarged and lined, and is now known as the Central Feeder Canal.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1956-1985		
		Average	Maximum	Minimum
January	11,338	9,282	69,527	0
February	10,887	3,848	23,550	0
March	13,083	6,090	35,492	0
April	20,739	11,700	68,714	0
May	30,124	10,453	58,365	0
June	26,352	10,251	50,025	0
July	30,248	12,908	46,139	0
August	32,158	17,233	107,162	0
September	37,776	13,984	68,053	0
October	4,791	12,848	110,417	0
November	27.3	12,013	99,044	0
December	59,104	10,577	70,213	0
Yearly	276,628	126,026	509,407	0
	Thousands of Cubic Meters			
	341,217	155,451	628,347	0

DESCRIPTION: Water-stage recorder and cableway located in Mexico on the left bank of the Colorado River about 24.5 miles (39.4 km) downstream from the southerly international boundary, 44.5 miles (71.6 km) downstream from Morelos Dam and 4.5 miles (7.2 km) upstream from the Sonora-Baja California railroad bridge. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

REMARKS: The flows at this gage show the seepage from canals that run parallel to the gage. The flow of the gage is at mean sea level, computed from gage height records based on daily gage readings at 8:00 a.m., Pacific Standard Time. A continuous record of gage heights obtained from July 21, 1954 to August 31, 1983. Records available: June 1951 through July 31, 1983.

gauge heights obtained from July 21, 1954 to August 31, 1983. Records available: June 1951 through July 31, 1983. The flows at this gauge show the seepage from canals that run parallel at higher elevations and adjacent to the river. On June 23, 1977 the Wellton-Mohawk drainage water discharged below Morelos Dam was diverted to the Estuary. Also, better utilization of irrigation waters has reduced the waste returns to a minimum. Normal flows are measured by wading at a section located 2,000 feet (600 m) below the gauge. With the high flows from excess water arriving at Morelos Dam, discharge measurements were made at the gauge and the discharge-relationship curve extended for greater flow. Due to high water and eroding river banks, the Mexican Section of the Commission dismantled the cable on August 16, 1983 and discontinued their recording station after August 31, 1983.

1950; and discontinued their recording station after August 31, 1983.

EXTREMES: Since January 1, 1952: Maximum mean daily gage height, 58.14 feet (17.72 m) on July 5, 1983; minimum mean daily gage height, 37.73 feet (11.50 m) on July 18 and 19, 1970; maximum mean daily discharge, 26,600 second-feet (753 m³/sec) on July 31, 1983; minimum mean daily discharge, no flow on various occasions; maximum instantaneous discharge, 31,800 second-feet (901 m³/sec) measured on August 15, 1983 with a gage height of 57.15 feet (17.42 m).

[illegible]

Sum

[illegible]

(See Preceding Page For Description)

[illegible]

WASTEWAY TO COLORADO RIVER AT KILOMETER 38 IN MEXICO

DESCRIPTION: Wasteway to the Colorado River on the left bank of new Barrote Canal at old dam and bridge at Kilometer 18+251 (old Kilometer 38+000). The wasteway is located in the Colonia Bojorquez 0.8 mile (1.3 km) upstream from the Sonora-Baja California railroad bridge, 3.7 miles (5.9 km) downstream from the Miguel C. Rodriguez gaging station, and 28.1 miles (45.3 km) downstream from the southerly international boundary.

RECORDS: The records are computed by the Ministry of Agriculture and Hydraulic Resources and based upon gate openings. Records available: January 1964 through 1985.

REMARKS: The wasteway structure on the left bank of the Colorado River has two manually operated radial gates 9.8 feet (3.0 m) wide. It discharges into a dirt canal 656 feet (200 m) long with a total capacity of 459 second-feet (13.0 m³/sec) which discharges to the river.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1964-1985		
		Average	Maximum	Minimum
January	6,165	1,617	8,546	0
February	9,757	1,339	9,757	0
March	4,468	634	4,809	0
April	1,021	213	1,992	0
May	6,787	1,035	11,549	0
June	6,960	758	6,960	0
July	3,129	617	7,389	0
August	3,001	1,067	14,402	0
September	10,359	1,595	10,359	0
October	15,181	3,801	23,242	0
November	6,413	2,470	20,481	0
December	3,943	2,016	10,847	0
Yearly	77,183	17,163	83,688	0
	Thousands of Cubic Meters			
	95,204	21,170	103,228	0

COLORADO RIVER AT EL MARITIMO IN MEXICO - STAGES

DESCRIPTION: Water-stage recorder and cableway in Mexico, 47.6 miles (76.6 km) downstream from the southerly international boundary, 18.6 miles (30.0 km) downstream from the Sonora-Baja California railroad bridge and 3.7 miles (6.0 km) east of Kilometer 70 of the Mexicali-San Felipe highway. The recorder is located on the right bank of the Colorado River. The zero of the gage is 9.84 feet (3.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records obtained and computed by the Mexican Section of the Commission. Records available: Mean daily discharges from January 1960 through 1968. Incomplete record of gage heights, March 1, 1946 through November 1947; twice daily readings of gage heights, January 1, 1948 through December 1949; continuous record of gage heights since installation of water-stage recorder February 8, 1956. Mean daily gage heights, January 1960 through August 31, 1983. Recorder taken out of operation in September 1983 due to high water and eroding banks.

REMARKS: In former years, the flow past this station was affected by the tides in the Gulf of California. After July 1968, measurement by current meter was suspended; beginning in 1969, twice daily readings of gage heights and no record of mean daily discharges.

EXTREMES: January 1960 through 1968: Maximum daily discharge, 4,380 second-feet (124 m³/sec), January 21 and December 7 and 8, 1960; minimum discharge, no flow on various occasions. Maximum monthly discharge, 225,224 acre-feet (277,811,000 m³) January 1960; minimum monthly discharge, zero during various months of several years. Annual maximum discharge, 503,260 acre-feet (620,765,000 m³) during 1960; minimum 59,335 acre-feet (73,189,000 m³) in 1968. January 1960 through 1983: Maximum gage height, 22.44 feet (6.84 m) July 24 to 28, 1983. Minimum gage height, 12.47 feet (3.80 m) on August 31 and September 1, 1960.

MEAN DAILY GAGE HEIGHT IN FEET 1985

[illegible]

STORED WATER IN LARGE RESERVOIRS OF THE COLORADO RIVER

Data are presented below for all large storage reservoirs in the Colorado River basin below Lee's Ferry, all of which are located in the United States. The monthly figures represent usable contents on the last day of the month, in thousands of acre-feet. The capacities indicated are usable capacities at the top of the spillway gates in closed position for those dams having controlled spillways; for all others, capacities indicated are at spillway level. Records furnished by the U. S. Geological Survey.

IN THOUSANDS OF ACRE-FEET

Month	LAKE MEAD (Capacity 26,159.0)		LAKE MOHAVE (Capacity 1,810.0)		HAVASU LAKE (Capacity 619.4)		TOTAL IN UNITED STATES RESERVOIRS (Capacity 28,588.4)	
	1985	Average 1935-1985	1985	Average 1951-1985	1985	Average 1939-1985	1985	Estimated Average
Jan.	23,938	17,919	1,715	1,659	551.9	553.4	26,204.9	20,131.4
Feb.	23,898	17,730	1,732	1,676	551.9	555.9	26,181.9	19,961.9
Mar.	23,861	17,475	1,733	1,674	573.0	570.5	26,167.0	19,719.5
Apr.	23,821	17,544	1,763	1,670	575.1	600.3	26,159.1	19,814.3
May	24,371	18,327	1,689	1,728	600.4	603.2	26,660.4	20,658.2
June	25,045	19,463	1,724	1,631	576.4	601.8	27,345.4	21,695.8
July	24,999	19,639	1,742	1,512	573.0	590.4	27,314.0	21,741.4
Aug.	24,821	19,436	1,709	1,462	561.1	574.2	27,091.1	21,472.2
Sept.	24,875	19,194	1,562	1,433	540.4	569.6	26,977.4	21,196.6
Oct.	24,573	18,968	1,460	1,443	554.1	569.5	26,587.1	20,980.5
Nov.	24,210	18,789	1,473	1,514	565.8	560.2	26,248.8	20,863.2
Dec.	23,721	18,589	1,410	1,599	585.9	556.5	25,716.9	20,744.5
Avg.	24,344	18,589	1,643	1,583	567.4	575.5	26,554.5	20,748.3
Max.	25,045	! 27,780	1,763	! 1,808	600.4	! 688.7	27,345.4	! 29,132.3
Min.	23,721	* 10,727	1,410	!! 1,186	540.4	!! 76.9	25,716.9	!! 13,062.6

! Maximum end of month storage for period of record
!! Minimum end of month storage for period of record

* Minimum end of month storage since 1940

SUSPENDED SILT - 1985

The following tables are based on determinations of gravimetric percentages of dry silt in water samples taken at each station by one of the following methods.

A. By lowering a D-43 depth integrating sampler at verticals located at centers of sections of equal discharge in the river cross section, being careful to approach but not strike the bottom. The samples obtained in the section are combined to comprise a composite sample for that date.

B. By lowering a D-43 depth integrating sampler at verticals located at centers of each span of the service bridge across the Alamo Canal, being careful to approach but not strike the bottom. The samples obtained in the section are combined to comprise a composite sample for that date.

C. By sampling at the stream surface with a separate bottle at each of three points, spaced 1/6, 1/2, and 5/6 of the stream width. The gravimetric percentage in each sample is determined, a coefficient of 1.10 is applied to the average of the three, and the product applied to the volume of the stream flow represented by that set of samples.

For ease of comparison, the assumption is made that 1,847 tons of deposited silt would occupy a volume of one acre-foot, or one cubic foot of deposited silt would weigh 85 pounds.

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY

Month	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons/Ac.Ft.	1956-1985 Period of Record		
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum
Jan.	1,869,358,800	1,314,700	5	0.0702	0.1088	0.0468	712	59.9	712	1.4
Feb.	1,784,445,800	1,327,200	4	0.0743	0.0984	0.0530	719	50.0	719	1.6
Mar.	1,518,666,200	1,128,000	4	0.0742	0.1136	0.0324	611	70.8	611	6.3
Apr.	1,036,972,700	332,700	4	0.0320	0.0445	0.0205	180	50.3	434	7.3
May	1,146,142,500	350,000	5	0.0305	0.0368	0.0184	189	34.6	451	2.2
June	1,273,372,100	449,500	4	0.0352	0.0417	0.0288	243	52.0	699	2.5
July	1,303,562,300	469,100	5	0.0359	0.0428	0.0285	254	67.2	722	2.5
Aug.	1,280,649,600	451,400	3	0.0352	0.0372	0.0328	244	58.0	617	3.8
Sept.	1,342,107,600	413,300	4	0.0307	0.0341	0.0267	224	38.7	518	1.6
Oct.	1,040,477,600	164,800	5	0.0158	0.0295	0.0072	89.2	29.1	452	.5
Nov.	988,183,300	114,700	4	0.0116	0.0190	0.0089	62.1	40.1	689	.5
Dec.	1,315,691,400	229,200	4	0.0174	0.0289	0.0091	124	53.1	715	.6
Yearly	15,899,625,900	6,744,600	51	0.0423	0.1136	0.0072	3,651	604	6,390	37.1

Samples by U. S. Section and analyses by United States Bureau of Reclamation, Method A

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

Month	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons/Ac.Ft.	1952-1985 Period of Record		
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum
Jan.	197,031	93,941	5	0.0477	0.1091	0.0116	50.8	8.0	50.8	0.2
Feb.	211,403	110,840	4	0.0524	0.1041	0.0198	59.8	9.4	59.8	.9
Mar.	345,149	164,450	4	0.0476	0.0945	0.0186	88.9	41.9	154	5.3
Apr.	422,293	101,211	4	0.0240	0.0362	0.0142	54.6	41.7	237	7.5
May	276,538	34,081	5	0.0123	0.0226	0.0059	18.4	11.7	61.8	1.5
June	317,148	70,868	4	0.0223	0.0292	0.0165	38.3	27.2	109	2.3
July	406,102	85,195	5	0.0210	0.0306	0.0070	46.0	37.7	156	3.9
Aug.	405,816	79,973	4	0.0197	0.0292	0.0114	43.2	36.2	135	3.8
Sept.	273,052	37,163	4	0.0136	0.0243	0.0065	20.1	16.1	64.7	1.9
Oct.	162,098	8,921	5	0.0055	0.0071	0.0047	48.2	6.5	48.2	.3
Nov.	162,688	6,390	4	0.0039	0.0053	0.0013	34.5	5.6	54.9	.2
Dec.	259,337	38,461	5	0.0148	0.0779	0.0030	20.8	7.1	23.7	1.1
Yearly	3,438,657	831,494	53	0.0237	0.1091	0.0013	523.6	249.1	809.0	51.4

Samples and analyses by Mexican Section, Method B

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

Month	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet at 1,847 Tons/Ac.Ft.	1946-1985 Period of Record		
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum
Jan.	1,664,224,600	1,939,200	1	0.1163	0.1354	0.1130	1,050			
Feb.	1,557,751,000	2,657,000	1	0.1703	0.2001	0.1379	1,439			
Mar.	1,200,349,000	1,648,200	1	0.1371	0.1884	0.0799	892			
Apr.	628,167,900	305,500	1	0.0486	0.0777	0.0267	165			
May	859,256,300	450,700	1	0.0524	0.0706	0.0332	244			
June	967,859,400	597,600	1	0.0616	0.0768	0.0410	324			
July	907,856,800	261,100	1	0.0287	0.0396	0.0248	141			
Aug.	878,637,000	234,800	1	0.0267	0.0342	0.0226	127			
Sept.	1,081,988,200	477,300	1	0.0440	0.0501	0.0349	258			
Oct.	876,049,500	440,500	1	0.0502	0.0515	0.0459	238			
Nov.	822,947,900	364,500	1	0.0442	0.0454	0.0428	197			
Dec.	1,074,326,900	694,300	1	0.0645	0.0926	0.0455	376			
Yearly	12,520,014,500	10,070,700	12	0.0803	0.2001	0.0226	5,451			

Samples by U. S. Section and analyses by United States Bureau of Reclamation, Method A

CHEMICAL ANALYSES OF WATER SAMPLES

The tables below are based on chemical analyses of samples from the Colorado River at the Northerly International Boundary taken by the United States Section of the Commission and analyzed by the U. S. Bureau of Reclamation.

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY

1985	Time	Streamflow Momentary	Specific Conductance	pH	Hardness, Total (as CaCO ₃)	Hardness Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg) Dissolved
Date	Std.	Sec.-Ft.	Micromhos	Units	mg/L	mg/L	mg/L	mg/L
Jan. 7	0830	22,300	997	7.9	309	166	82	26
Jan. 21	0830	22,100	989	7.6	282	144	73	24
Feb. 4	0830	21,800	1,030	7.8	295	156	77	26
Feb. 19	0830	22,900	1,060	7.4	297	165	85	27
Mar. 4	0830	22,500	1,060	7.8	315	180	82	27
Mar. 18	0830	18,500	1,090	7.5	317	182	80	26
Apr. 1	0830	13,800	1,120	7.7	295	149	77	25
Apr. 15	0830	11,300	1,130	7.7	305	153	80	26
May 6	0830	12,300	1,200	7.5	320	164	83	27
May 20	0830	14,900	1,110	7.2	322	172	84	27
June 3	0830	17,900	1,050	7.8	325	185	86	27
June 17	0830	15,900	1,020	7.7	310	174	80	27

1985	Sodium ion (Na) Dissolved	Potassium ion (K) Dissolved	Sulfate ion (SO ₄) Dissolved	Chloride ion (Cl) Dissolved	Carbonate (as CO ₃)	Bicarbonate (as HCO ₃)	Nitrate (as NO ₃)	Solids Dissolved (Calculated)
Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Jan. 7	85	4	238	77	0	175	1.3	607
Jan. 21	85	4	226	68	0	168	1.6	594
Feb. 4	91	4	223	97	0	170	2.0	614
Feb. 19	92	5	214	111	0	161	1.9	615
Mar. 4	97	4	228	101	0	165	1.0	635
Mar. 18	104	4	216	110	0	165	2.0	638
Apr. 1	113	5	206	134	0	176	2.0	663
Apr. 15	118	5	197	146	0	185	1.5	678
May 6	132	6	216	158	0	190	1.3	730
May 20	106	5	247	114	0	183	.9	683
June 3	92	4	238	80	0	171	1.2	621
June 17	92	5	228	81	0	166	1.1	603

1985	Time	Streamflow Momentary	Specific Conductance	pH	Hardness, Total (as CaCO ₃)	Hardness Noncarbonate (as CaCO ₃)	Calcium ion (Ca), Dissolved	Magnesium ion (Mg) Dissolved
Date	Std.	Sec.-Ft.	Micromhos	Units	mg/L	mg/L	mg/L	mg/L
July 1	0830	16,100	1,040	7.9	317	175	81	28
July 15	0830	15,700	1,030	8.2	325	191	82	29
Aug. 5	0830	15,900	1,030	7.5	312	178	81	27
Aug. 19	0830	15,600	994	7.8	305	153	79	26
Sep. 3	0830	16,700	976	7.5	300	146	78	26
Sep. 16	0830	15,400	1,010	7.4	307	153	79	27
Oct. 21	0830	11,900	1,030	7.8	317	177	82	27
Nov. 4	0830	12,000	1,050	7.6	327	187	87	27
Nov. 18	0830	13,300	1,010	8.0	335	183	88	28
Dec. 2	0830	15,200	989	7.8	310	158	81	26

1985	Sodium ion (Na) Dissolved	Potassium ion (K) Dissolved	Sulfate ion (SO ₄) Dissolved	Chloride ion (Cl) Dissolved	Carbonate (as CO ₃)	Bicarbonate (as HCO ₃)	Nitrate (as NO ₃)	Solids Dissolved (Calculated)
Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
July 1	91	5	221	84	0	173	1.3	604
July 15	90	5	252	85	0	163	1.8	635
Aug. 5	89	4	242	77	0	163	1.5	611
Aug. 19	86	4	245	75	0	185	.8	619
Sep. 3	82	4	242	70	0	188	.8	607
Sep. 16	87	4	262	71	0	188	1.0	633
Oct. 21	92	4	252	79	0	171	1.3	626
Nov. 4	90	4	240	89	0	171	1.4	634
Nov. 18	89	4	240	82	0	185	1.3	634
Dec. 2	90	5	233	83	0	185	1.3	622

SPECIFIC CONDUCTANCE OF WATER SAMPLES

The following tables show specific conductance of individual water samples taken at Colorado River stations and in Mexican canals. Samples were taken at the northerly international boundary by both Sections of the Commission and at the southerly international boundary by the United States Section. Determinations for the northerly international boundary were made by the Bureau of Reclamation; and for the southerly international boundary, by the United States Section of the Commission. Samples for the Intake Canal at Morelos Dam were taken by the Mexican Section of the Commission, and determinations were made by the Ministry of Agriculture and Hydraulic Resources of Mexico. No samples were taken at the Miguel C. Rodriguez gaging station.

COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1985

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,020	1,050	1,080	1,120	1,220	1,060	1,040	1,020	1,000	999	1,040	991
2	1,010	1,040	1,070	1,120	1,270	1,050	1,040	1,020	1,000	1,000	1,040	989
3	1,020	1,040	1,060	1,140	1,280	1,050	1,050	1,020	976	1,040	1,040	1,010
4	1,030	1,030	1,060	1,100	1,250	1,070	1,050	1,030	998	1,050	1,050	1,010
5	1,030	1,040	1,090	1,110	1,220	1,060	1,050	1,030	999	1,050	1,040	1,060
6	1,020	1,040	1,090	1,120	1,200	1,080	1,050	1,030	1,020	1,050	1,030	1,050
7	997	1,030	1,100	1,130	1,300	1,060	1,050	1,030	1,020	1,050	1,040	1,030
8	1,010	1,030	1,150	1,140	1,290	1,060	1,050	1,010	1,020	1,040	1,050	1,010
9	1,010	1,020	1,150	1,150	1,340	1,060	1,040	1,000	1,020	1,050	1,050	983
10	1,010	1,050	1,170	1,140	1,350	1,060	1,030	1,000	1,000	1,070	1,050	996
11	1,030	1,050	1,190	1,170	1,330	1,060	1,040	1,000	1,010	1,070	1,050	1,000
12	1,030	1,050	1,170	1,190	1,330	1,050	1,040	1,000	1,010	1,060	1,050	992
13	1,030	1,060	1,180	1,170	1,340	1,050	1,030	1,020	1,040	1,050	1,020	995
14	1,020	1,060	1,170	1,150	1,330	1,070	1,030	1,020	1,030	1,040	1,030	990
15	1,010	1,060	1,150	1,130	1,350	1,050	1,030	1,010	1,020	1,030	1,030	985
16	1,010	1,070	1,130	1,190	1,250	1,040	1,030	1,010	1,010	1,030	1,030	979
17	1,020	1,060	1,110	1,190	1,230	1,020	1,050	1,020	1,030	1,030	1,020	980
18	1,020	1,070	1,090	1,150	1,180	1,050	1,030	1,010	1,030	1,030	1,010	969
19	1,010	1,060	1,130	1,150	1,120	1,050	1,020	994	1,010	1,030	1,040	942
20	1,000	1,070	1,150	1,150	1,110	1,050	1,020	1,010	1,010	1,030	1,040	976
21	989	1,060	1,150	1,150	1,180	1,060	1,030	1,010	1,010	1,030	1,030	973
22	1,010	1,070	1,140	1,160	1,170	1,060	1,040	1,030	1,010	1,020	1,020	970
23	1,010	1,070	1,130	1,150	1,150	1,060	1,030	1,030	1,020	1,040	1,020	967
24	1,000	1,070	1,130	1,160	1,130	1,060	1,020	1,020	1,010	1,040	1,020	958
25	1,010	1,070	1,170	1,170	1,110	1,050	1,030	1,010	1,020	1,050	1,020	955
26	1,000	1,080	1,150	1,150	1,100	1,060	1,030	1,010	1,020	1,050	972	972
27	1,010	1,080	1,180	1,150	1,100	1,050	1,030	997	1,020	1,040	983	955
28	1,030	1,080	1,170	1,160	1,100	1,050	1,020	1,000	1,010	1,040	978	963
29	1,040		1,220	1,230	1,070	1,050	1,020	991	1,000	1,040	993	971
30	1,040		1,200	1,230	1,090	1,050	1,020	1,010	993	1,060	993	980
31	1,050		1,160		1,060		1,030	1,000		1,050		971

* Estimated

SPECIFIC CONDUCTANCE OF WATER SAMPLES

INTAKE CANAL AT MORELOS DIVERSION STRUCTURE

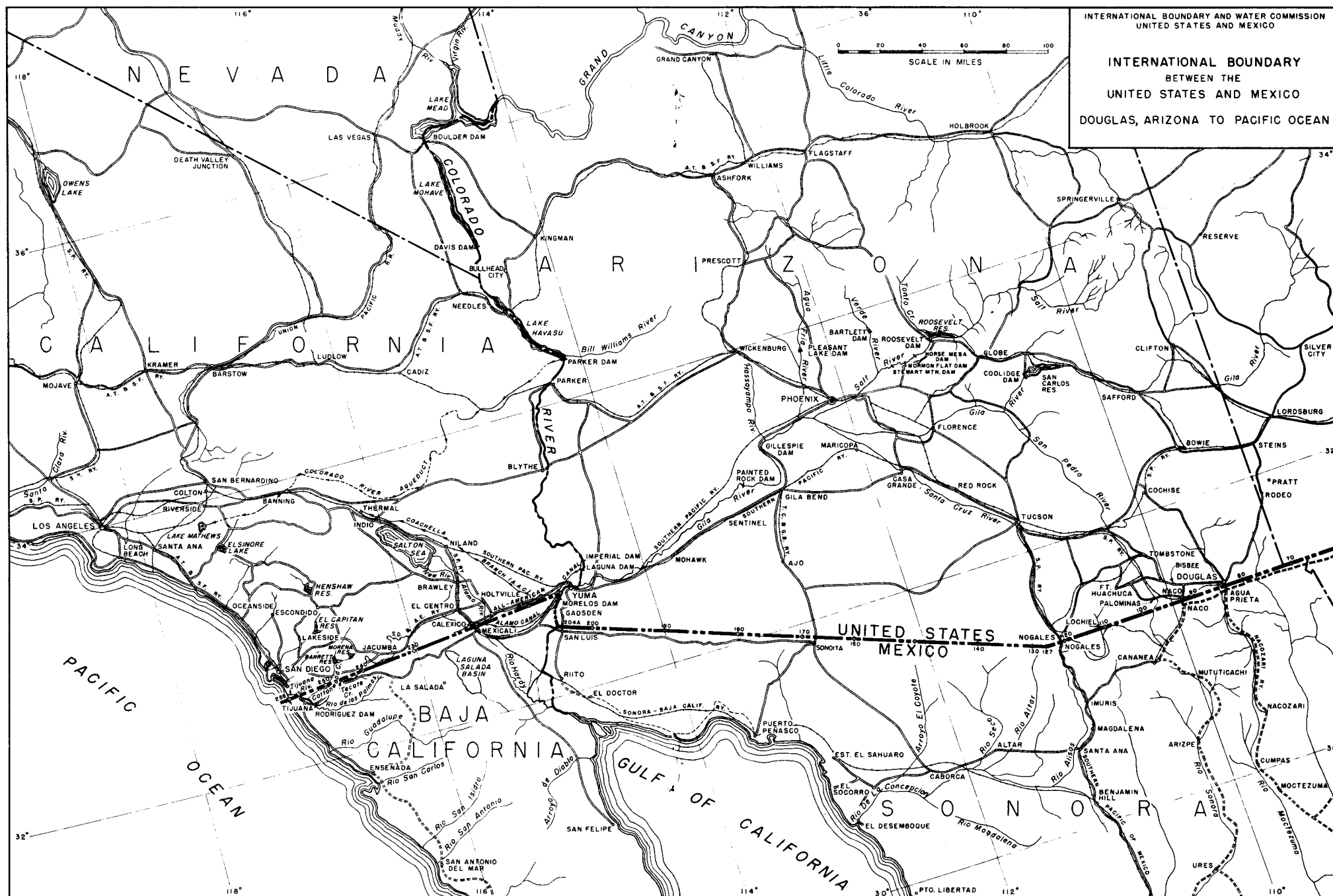
SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1985

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,010	1,030	1,020	1,080	1,110	1,000	1,010	1,340	982	979	1,010	999
2	995	1,030	1,010	1,060	1,130	1,020	1,020	1,000	985	970	1,000	1,020
3	984	1,030	1,030	1,080	1,000	1,020	1,020	1,000	980	999	1,030	1,010
4	1,010	1,020	1,040	1,010	1,080	1,020	1,000	1,000	980	1,000	1,000	1,020
5	1,000	1,020	1,040	1,020	1,120	1,020	1,030	997	976	988	1,010	1,040
6	1,000	1,030	1,050	1,020	1,160	998	1,000	1,010	988	990	1,000	1,010
7	1,010	996	1,020	1,070	1,120	1,000	994	999	991	1,000	992	991
8	1,010	975	1,050	1,080	1,130	1,020	1,010	969	985	989	1,010	1,000
9	989	986	1,060	1,090	1,080	1,020	1,010	989	980	982	1,000	974
10	1,060	1,020	1,080	1,090	1,100	1,020	1,010	988	985	991	1,000	1,010
11	976	1,020	1,100	1,050	1,100	1,020	1,020	996	984	1,010	993	977
12	992	987	1,090	1,040	1,090	1,020	991	996	982	1,010	999	964
13	1,020	1,000	1,100	1,060	1,100	1,010	1,010	997	1,010	1,010	1,030	972
14	1,000	960	1,030	1,080	1,100	1,020	1,010	995	996	1,010	977	982
15	1,000	966	1,020	1,100	1,120	1,010	1,010	985	993	1,260	1,000	974
16	1,010	990	1,020	1,110	1,040	1,140	1,000	978	992	1,420	975	940
17	970	1,020	1,030	1,110	1,020	1,100	1,010	994	981	995	975	951
18	1,000	1,020	1,050	1,060	1,020	1,020	1,030	985	990	1,000	992	963
19	1,000	1,030	1,050	1,050	1,010	1,010	985	995	980	1,000	993	919
20	1,010	1,030	1,060	1,050	998	1,020	994	988	969	999	1,030	951
21	1,000	985	1,080	1,030	1,040	1,060	1,000	995	979	1,000	976	963
22	1,010	997	1,070	1,050	1,060	1,010	998	976	954	992	987	966
23	1,000	1,000	1,000	1,080	991	1,020	1,010	985	984	1,000	989	963
24	967	1,030	1,060	1,080	1,000	1,020	997	983	988	1,000	997	962
25	1,000	1,030	1,080	1,060	976	1,010	957	980	985	1,000	989	941
26	1,010	1,030	1,080	1,080	1,020	1,020	1,000	987	988	1,000	1,000	944
27	1,000	1,030	1,100	1,100	1,020	1,040	1,010	985	974	1,000	1,000	938
28	1,020	980	1,060	1,090	1,040	970	996	982	972	1,000	957	949
29	1,020		1,090	1,110	1,020	1,070	998	961	966	999	964	960
30	1,020		1,100	1,120	999	1,070	1,000	979	971	1,010	962	964
31	1,030		1,070		997		999	976		994		966

COLORADO RIVER AT SOUTHERLY INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1985

January	March	May	July	August	October	December
22 1,000	12 1,120	21 1,130	2 1,030	27 994	8 1,010	2 999
February	April	June	23 1,030	September	November	3 997
26 1,180	9 1,120	4 1,060		10 1,010	19 1,020	



RAINFALL ON THE COLORADO RIVER WATERSHED IN INCHES

Tabulated below are monthly records of rainfall at stations located in California and Arizona in the United States and in Baja California and Sonora in Mexico, with averages for their periods of record. Records of daily rainfall amounts, where available, are on file in the offices of the United States or Mexican Sections of the Commission. For location, elevation, period of record, and the observer, see alphabetical listings of these stations on page 49 in this bulletin.

IN THE UNITED STATES

Month	Brawley, California		El Centro, California		Blythe, California		Yuma Citrus Station, Arizona		Bullhead City, Arizona	
	1985	Average 1931-1985	1985	Average 1931-1985	1985	Average 1931-1985	1985	Average 1931-1985	1985	Average 1978-1985
Jan.	0.08	0.36	0.06	0.37	0.32	0.44	0.07	0.41	1.19	1.19
Feb.	.17	.33	.20	.35	0	.42	.19	.35	.04	.88
Mar.	0	.24	0	.23	.10	.42	* .04	.26	.10	1.31
Apr.	0	.09	0	.09	0	.13	* 0	.11	.09	.16
May	0	.02	0	.01	0	.03	0	.02	0	.17
June	T	.01	0	.01	0	.04	0	.02	T	.01
July	.06	.06	.04	.09	0	.18	.05	.20	.02	.64
Aug.	0	.39	.30	.37	0	.81	T	.58	0	1.14
Sept.	.97	.34	1.86	.30	1.64	.39	1.42	.35	.88	.58
Oct.	.27	.23	.63	.24	.86	.29	.43	.39	.35	.35
Nov.	1.00	.18	.79	.19	1.85	.27	.62	.19	.91	.71
Dec.	.52	.45	.84	.47	.14	.54	.35	.44	.03	1.00
Yearly	3.07	2.70	4.72	2.72	4.91	3.96	3.17	3.32	3.61	8.14

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis, R. C., Sonora		Delta, Baja California	
	1985	Average 1948-1985	1985	Average 1926-1985	1985	Average 1948-1985	1985	Average 1949-1985	1985	Average 1948-1985
Jan.	0.12	0.43	0.04	0.35	0.04	0.35	0	0.35	0	0.35
Feb.	.16	.24	.08	.31	.12	.20	.12	.28	.12	.28
Mar.	0	.16	0	.24	0	.16	0	.24	0	.16
Apr.	0	.08	0	.08	0	.12	0	.04	0	.08
May	0	T	0	T	0	T	0	.04	0	T
June	0	T	0	T	0	.04	0	T	0	T
July	0	.12	T	.16	.20	.08	0	.24	0	.08
Aug.	.24	.39	0	.39	0	.28	0	.47	0	.28
Sept.	.47	.20	1.34	.39	.94	.12	.31	.28	.31	.24
Oct.	.24	.28	.31	.28	.39	.28	0	.35	.87	.31
Nov.	.63	.16	.35	.16	.20	.16	0	.43	.12	.12
Dec.	.28	.39	.91	.75	.28	.28	.31	.63	.51	.35
Yearly	2.13	2.44	3.11	3.19	2.17	2.01	0.75	2.99	1.93	2.24

Month	Colonia Juarez, Baja California		Laguna Salada, Baja California		Riito, Sonora		Santa Clara, Sonora		San Felipe, Baja California		El Centinela, Baja California	
	1985	Average 1952-1985	1985	Average 1975-1985	1985	Average 1959-1985	1985	Average 1971-1985	1985	Average 1969-1985	1985	Average 1978-1985
Jan	0.08	0.47	0.08	0.35	0	0.28	0	0.28	0	0.35	0	0.31
Feb.	.24	.31	0	.39	.31	.28	#	.31	0	.16	T	.31
Mar.	0	.28	0	.08	0	.20	#	.12	0	.12	0	.12
Apr.	0	.08	#	.08	0	.04	#	.04	0	.04	0	0
May	0	.04	#	.04	0	T	0	T	0	.04	0	0
June	0	T	#	0	0	.04	0	T	0	.04	0	0
July	0	.20	#	.20	0	.08	0	.04	0	.16	0	T
Aug.	0	.35	0	.75	0	.31	0	.39	0	.47	0	.55
Sept.	.63	.31	.39	.79	.16	.51	0	.28	0	.39	0	.08
Oct.	.47	.43	.16	.16	.67	.39	0	.51	.55	.24	.16	.16
Nov.	.08	.24	.24	.12	.12	.24	#	.08	0	.20	.43	.08
Dec.	.39	.35	.79	.94	.35	.43	#	.31	0	.43	.59	.63
Yearly	1.89	2.48			1.61	2.80			0.55	2.80	1.18	2.68

Blythe FAA Airport

T Trace

Missing record

* Yuma WSO AP

LOCATION OF RAINFALL STATIONS ON THE COLORADO RIVER WATERSHED

The precipitation records of the stations listed alphabetically below began on the date shown and extend through 1985.

IN THE UNITED STATES

NAME OF STATION	LATI- TUDE	LONGI- TUDE	♂ ELEV. (FT.)	RECORD BEGAN	OBSERVER
* Blythe, California	33° 37'	114° 36'	268	1909	State Division of Forestry
Brawley, California	32° 57'	115° 33'	100	1908	Agricultural Research Service
Bullhead City, Arizona	35° 07'	114° 36'	580	1980	Bullhead City Fire Department
El Centro, California	32° 46'	115° 34'	30	1930	El Centro Water Department
Yuma Citrus Station, Arizona	32° 37'	114° 39'	191	1923	University of Arizona Experimental Farm

IN MEXICO

NAME OF STATION	LATI- TUDE	LONGI- TUDE	♂ ELEV. (FT.)	RECORD BEGAN	OBSERVER
Bataques, Baja California	32° 34'	115° 01'	** 66	1948	# S. A. R. H.
Colonia Juarez, Baja California	32° 18'	115° 05'	49	1952	S. A. R. H.
Delta, Baja California	32° 21'	115° 11'	** 39	1948	S. A. R. H.
El Centinela, Baja California	32° 35'	115° 45'	164	1978	S. A. R. H.
Laguna Salada, Baja California	32° 12'	115° 44'	7	1975	S. A. R. H.
Los Algodones, Baja California	32° 42'	114° 44'	92	1948	S. A. R. H.
Mexicali, Baja California	32° 40'	115° 27'	13	1926	S. A. R. H.
Riito, Sonora	32° 13'	115° 01'	43	1959	S. A. R. H.
San Felipe, Baja California	31° 01'	114° 51'	72	1969	S. A. R. H.
San Luis, R. C., Sonora	32° 28'	114° 51'	131	1949	S. A. R. H.
Santa Clara, Sonora	31° 42'	114° 29'	33	1971	S. A. R. H.

* Not shown on map

♂ Elevation above mean sea level except Brawley and El Centro, which are elevations below mean sea level

** Elevations obtained from International Boundary and Water Commission topographic maps

Ministry of Agriculture and Hydraulic Resources

EVAPORATION IN THE COLORADO RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at one station in Arizona and at nine stations in Baja California and Sonora, Mexico. The station in the United States is operated by the University of Arizona Experimental Farm. The stations in Mexico are operated by the Ministry of Agriculture and Hydraulic Resources. The type of pan used at all these stations was the National Weather Service standard pan of 4-foot diameter. For specific location of these stations, refer to data opposite the same station name shown in "Location of Rainfall Stations," page 49 in this bulletin.

IN THE UNITED STATES

Month	Yuma Citrus Station, Arizona	
	1985	Average 1931-1985
Jan.	3.49	3.87
Feb.	4.34	4.78
Mar.	#	7.41
Apr.	#	10.06
May	12.17	12.99
June	13.88	14.28
July	14.16	15.31
Aug.	12.83	13.46
Sept.	8.32	10.65
Oct.	5.87	7.52
Nov.	4.07	4.91
Dec.	3.42	3.64
Yearly		108.88

IN MEXICO

Month	Los Algodones, Baja California		Mexicali, Baja California		Bataques, Baja California		San Luis R. C. Sonora		Delta, Baja California	
	1985	Average 1948-1985	1985	Average 1926-1985	1985	Average 1948-1985	1985	Average 1953-1985	1985	Average 1948-1985
Jan.	4.57	4.45	2.24	2.60	3.74	3.78	4.21	3.35	5.47	3.39
Feb.	4.84	5.28	2.40	5.43	4.09	4.65	#	4.06	5.04	4.33
Mar.	7.80	7.56	5.00	5.87	7.28	6.93	4.29	6.22	#	6.14
Apr.	11.77	10.31	6.65	7.95	10.43	8.70	8.50	8.23	#	8.11
May	14.21	12.91	8.78	10.55	12.44	11.54	9.21	10.98	9.53	10.39
June	13.82	13.98	10.75	11.73	13.74	13.07	#	12.64	#	10.94
July	18.98	13.94	10.08	11.77	13.11	12.91	#	13.70	#	11.61
Aug.	15.83	12.48	8.78	10.08	12.56	11.10	#	12.28	#	10.55
Sept.	9.17	10.28	7.13	8.07	7.68	9.29	#	9.49	8.70	8.58
Oct.	6.54	8.11	4.45	5.71	5.43	6.50	#	6.38	#	6.06
Nov.	4.45	5.31	2.80	3.39	4.29	4.84	#	4.21	#	4.25
Dec.	5.08	4.29	1.69	2.40	3.35	3.46	#	3.19	#	3.15
Yearly	117.05	108.46	70.75	83.54	98.15	96.89		95.71		79.02

Month	Colonia Juarez, Baja California		Laguna Salada, Baja California		Riito, Sonora		Santa Clara, Sonora			
	1985	Average 1970-1985	1985	Average 1975-1985	1985	Average 1963-1985	1985	Average 1971-1985		
Jan.	4.65	3.70	4.72	4.25	#	3.11	5.16	5.00		
Feb.	5.35	4.45	5.63	4.76	#	4.06	#	4.76		
Mar.	6.97	6.46	7.24	7.01	#	5.98	#	6.14		
Apr.	9.45	8.19	#	8.35	#	7.72	#	7.60		
May	12.36	10.75	#	11.06	#	10.55	#	8.58		
June	15.31	12.52	#	13.19	#	11.81	#	10.67		
July	16.14	12.68	#	13.62	#	12.40	#	10.94		
Aug.	13.74	11.14	8.90	11.81	#	10.47	#	10.00		
Sept.	8.70	9.61	8.23	8.43	#	8.46	#	9.02		
Oct.	6.65	7.40	6.85	7.76	#	6.02	#	7.28		
Nov.	4.41	4.84	4.84	5.31	#	3.74	#	5.79		
Dec.	3.50	3.54	4.25	3.86	#	3.03	#	5.08		
Yearly	107.24	97.24				88.43				

Missing record

Incomplete record

TEMPERATURE IN THE COLORADO RIVER BASIN IN DEGREES FAHRENHEIT

The maximum, minimum, and monthly mean temperature observations for United States stations are from daily readings of thermometers generally exposed in a shelter located a few feet above sod-covered ground. The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations, with maximum and minimum for their periods of record. For specific location, elevation, period of record, and the observer, refer to data opposite same station name as shown in "Location of Rainfall Stations," page 49 in this bulletin.

IN THE UNITED STATES

Month	Blythe, California				Yuma Citrus Station, Arizona				Brawley, California			
	1985			Average 1931-85	1985			Average 1931-85	1985			Average 1931-85
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	52.5	71	35	52.7	53.1	71	33	53.2	54.3	75	32	53.9
Feb.	54.9	81	28	57.3	54.9	83	29	57.0	56.1	86	26	58.1
Mar.	61.6	88	33	62.9	**64.3	** 91	**40	62.0	62.8	88	35	63.1
Apr.	73.1	102	48	70.0	**76.2	**105	**54	68.6	71.9	101	48	69.7
May	79.1	103	54	77.5	77.5	101	52	75.8	77.8	103	50	77.2
June	88.3	115	57	85.4	86.4	114	56	83.7	87.3	115	55	85.0
July	* 96.0	* 119	* 74	92.5	91.5	115	69	91.0	93.1	118	69	91.9
Aug.	91.0	116	65	90.9	90.0	115	64	90.2	91.4	119	64	91.3
Sept.	78.5	105	52	84.9	78.4	104	53	84.9	80.6	109	55	86.1
Oct.	72.2	98	48	73.0	72.4	99	49	73.4	74.1	103	49	74.9
Nov.	58.5	85	33	60.1	59.0	86	37	61.2	60.8	90	33	62.4
Dec.	53.0	74	26	53.2	54.6	75	30	54.5	56.5	81	30	55.1
Yearly	71.6	* 119	26	71.7	71.5	115	29	71.3	72.2	119	26	72.4

Month	El Centro, California				Bullhead City, Arizona							
	1985			Average 1931-85	1985			Average 1978-85				
	Mean	Max.	Min.		Mean	Max.	Min.					
Jan.	53.0	73	25	53.9	53.2	69	35	53.3				
Feb.	56.3	85	28	58.0	57.0	81	28	57.6				
Mar.	62.1	87	34	62.9	61.6	89	33	62.6				
Apr.	72.6	102	45	69.4	75.1	102	49	70.8				
May	78.1	102	53	77.1	81.7	106	55	80.3				
June	87.7	115	54	85.1	91.8	119	60	89.8				
July	93.3	116	71	91.8	97.2	121	72	95.0				
Aug.	91.6	116	68	91.0	93.7	121	69	93.1				
Sept.	80.4	104	53	85.6	81.4	108	55	86.8				
Oct.	74.6	98	55	74.5	74.2	102	50	73.6				
Nov.	61.5	88	35	62.1	59.8	85	34	60.6				
Dec.	57.6	77	34	54.8	55.1	74	30	53.3				
Yearly	72.4	116	25	72.2	73.5	121	28	73.1				

IN MEXICO

Month	Los Algodones, Baja California				Mexicali, Baja California				Bataques, Baja California			
	1985		1948-1985		1985		1926-1985		1985		1948-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	72	37	88	23	70	34	93	19	84	34	113	16
Feb.	81	32	95	28	81	25	93	23	84	27	99	21
Mar.	82	37	100	32	86	39	100	30	86	37	113	25
Apr.	97	46	109	37	100	50	106	34	102	48	118	16
May	99	52	117	43	102	52	117	43	100	52	124	34
June	117	59	126	52	115	57	120	48	115	50	135	43
July	118	72	118	61	113	70	118	55	117	66	133	45
Aug.	113	64	120	61	120	66	120	54	120	63	129	46
Sept.	102	52	122	50	109	57	122	48	106	54	135	39
Oct.	95	48	111	32	95	54	111	32	100	48	118	32
Nov.	90	39	100	27	84	34	104	28	90	34	115	32
Dec.	75	32	90	23	72	30	90	23	77	34	97	25
Yearly	118	32	126	23	120	25	122	19	120	27	135	16

* Blythe FAA Airport

** Yuma WSO Airport

TEMPERATURE IN THE COLORADO RIVER BASIN
IN DEGREES FAHRENHEIT

IN MEXICO

Month	Riito, Sonora				Santa Clara, Sonora				San Felipe, Baja California			
	1985		1949-1985		1985		1971-1985		1985		1969-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	72	36	91	19	77	46	90	18	66	39	99	30
Feb.	81	34	95	21	#	#	90	23	77	39	102	32
Mar.	82	37	100	25	#	#	90	37	81	41	104	32
Apr.	102	50	109	36	#	#	102	46	100	46	113	34
May	102	50	115	41	97	54	106	50	95	52	120	41
June	115	54	124	45	104	61	117	57	113	59	124	50
July	120	68	140	52	102	54	115	54	113	72	124	50
Aug.	118	61	122	46	104	72	106	68	113	68	135	41
Sept.	106	52	118	39	102	57	108	57	99	57	126	37
Oct.	97	46	115	30	95	55	102	41	99	50	117	23
Nov.	88	36	118	27	#	#	93	36	90	43	118	21
Dec.	79	32	86	21	#	#	86	25	72	41	97	28
Yearly	120	32	140	19			117	18	113	39	135	21

Month	San Luis, R. C., Sonora				Delta, Baja California				Colonia Juarez, Baja California			
	1985		1949-1985		1985		1948-1985		1985		1964-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	77	37	100	19	77	36	104	27	73	34	91	19
Feb.	86	32	109	27	90	39	104	28	84	32	97	21
Mar.	88	39	108	28	95	39	113	28	88	34	99	25
Apr.	108	48	115	37	106	43	118	32	104	45	115	30
May	109	43	115	41	111	45	129	32	102	48	117	36
June	120	61	126	45	117	50	133	36	115	52	122	39
July	120	61	126	59	124	61	135	45	115	68	122	45
Aug.	115	64	122	55	122	59	140	52	118	61	118	50
Sept.	108	55	118	50	111	54	135	39	104	50	122	39
Oct.	104	50	118	32	108	46	117	34	100	50	118	36
Nov.	91	36	113	28	93	36	120	32	90	34	104	25
Dec.	79	32	102	23	79	34	104	27	81	32	97	19
Yearly	120	32	126	19	124	34	140	27	118	32	122	19

Month	Laguna Salada, Baja California				El Centinela, Baja California							
	1985		1975-1985		1985		1977-1985					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
Jan.	70	36	84	18	73	36	75	34				
Feb.	86	32	95	27	77	25	82	25				
Mar.	84	39	95	32	79	37	90	37				
Apr.	#	#	100	36	106	54	106	46				
May	#	#	115	39	93	54	113	54				
June	#	#	120	50	111	55	118	50				
July	#	#	122	54	117	79	120	68				
Aug.	118	64	118	52	113	70	115	64				
Sept.	104	50	118	48	102	63	115	52				
Oct.	100	48	118	36	99	55	108	50				
Nov.	86	32	95	28	88	43	93	39				
Dec.	79	25	86	19	75	30	82	30				
Yearly			122	18	117	25	120	25				

Missing record

IRRIGATED AREAS ALONG COLORADO RIVER BELOW IMPERIAL DAM

1985

The total drainage area within the Colorado River basin is about 246,000 square miles, of which 184,600 square miles lie above Imperial Dam and about 61,400 square miles are below the dam. Of the area below Imperial Dam, 59,400 square miles are in the United States and about 2,000 square miles are in Mexico. The area below Imperial Dam includes the Gila River watershed with a total area of about 58,200 square miles, of which about 1,100 square miles are in Mexico.

The irrigated areas tabulated below comprise the areas in the United States and Mexico which are served by diversions from the Colorado River at or below Imperial Dam. The diversions are supplemented by some pumping from wells in both countries. The areas in the United States include: 1) those within the U. S. Bureau of Reclamation Projects and in the North and South Gila Valleys located near Yuma, Arizona, the data for which are furnished by the U. S. Bureau of Reclamation; 2) those within the Coachella Valley, California, the data for which are furnished by the Coachella Valley County Water District; and 3) those within the Imperial Valley, California, the data for which are furnished by the Imperial Irrigation District. The areas in Mexico include those in the Mexicali Valley located in the states of Baja California and Sonora, the data for which are furnished by the Ministry of Agriculture and Hydraulic Resources of Mexico. The areas tabulated below refer to the total areas farmed, and insofar as possible, duplication of irrigated areas because of double cropping has been eliminated.

Point of Diversion from Colorado River and Designation of Areas	Total Irrigated Areas Acres
IN UNITED STATES:	
Imperial Dam	
Yuma Valley Division	46,488
Reservation Division	12,531
Yuma Mesa	22,688
Yuma Aux. Project Unit "B" (Yuma Mesa)	3,261
South Gila Valley	9,955
North Gila Valley	5,963
Wellton-Mohawk	60,655
Coachella Valley	58,963
Imperial Valley	457,672
Warren Act	80
Non-Project lands adjacent to Colorado River	12,560
Total in United States	690,816
IN MEXICO:	
Morelos Dam	
Mexicali Valley	* 526,544
Total in United States and Mexico	1,217,360

* An estimated 33% of total acreage is served by pumping from ground water in Mexicali Valley

ALAMO RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Staff gage located on the right bank of the river, about 7 miles (11.3 km) east of Calexico, California, immediately downstream from the international land boundary between the United States and Mexico and a few feet upstream from a 4-foot (1.22 m) Cipolletti weir in the throat of a twin-tube concrete culvert which carries the river flow under the All-American Canal.

RECORDS: Computed on the basis of head on the Cipolletti weir from daily staff gage readings, and weir ratings as determined by monthly current meter measurements. Records obtained and furnished by Imperial Irrigation District. Records available: June 1942 through 1985.

REMARKS: The flow at this station normally comprises seepage from the All-American Canal and drainage water from the Mexicali Valley which enters the United States.

EXTREMES: Maximum mean daily discharge, 258 second-feet (7.31 m³/sec) (estimated), April 13, 1946; minimum discharge, no flow July 22-23, 29-30, 1949. Prior to the period of record, and since 1900, considerably higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a part of its flow passed through the Alamo River channel.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.13	2.75	2.44	2.65	3.24	2.96	2.13	3.65	2.96	2.13	2.13	2.23
2	2.34	2.75	3.79	2.65	2.96	3.24	2.13	3.65	2.96	2.13	2.13	2.44
3	2.13	2.44	3.65	2.75	2.54	2.96	3.65	2.96	1.74	1.92	2.96	2.44
4	2.13	2.44	2.96	2.96	2.54	2.96	3.24	2.96	1.55	1.74	2.75	2.34
5	2.13	2.23	2.75	2.96	2.54	3.93	2.54	2.96	1.74	1.92	3.38	2.65
6	2.13	2.54	2.34	2.75	2.96	3.38	2.54	2.13	1.83	2.02	2.54	2.54
7	2.13	2.23	2.34	3.79	2.96	4.76	2.96	2.23	2.13	2.13	3.93	2.44
8	2.23	2.23	2.44	2.54	2.96	4.76	2.54	2.96	1.83	2.02	2.34	2.44
9	2.23	2.44	2.65	2.54	3.38	4.35	2.75	2.96	2.13	1.92	2.65	2.44
10	2.23	2.96	2.34	2.54	2.96	3.65	2.65	2.96	1.83	2.23	2.44	2.34
11	2.13	2.75	2.34	2.75	2.75	3.24	2.54	2.96	2.96	2.13	2.34	2.54
12	2.13	2.75	2.34	2.75	2.96	3.65	3.24	2.13	2.54	2.23	2.96	2.54
13	2.13	2.54	2.34	2.96	2.96	3.65	2.96	2.23	3.38	2.13	2.34	2.34
14	2.13	2.34	2.54	3.38	3.10	2.13	2.96	2.23	2.44	2.13	2.13	2.13
15	2.13	2.44	2.54	3.24	3.24	2.34	2.75	2.54	2.54	1.92	2.13	2.23
16	2.13	2.44	2.44	2.96	2.44	1.92	2.75	2.02	2.65	2.13	2.13	2.34
17	2.02	2.44	2.44	2.65	2.54	2.13	3.24	2.96	2.34	2.13	2.13	2.13
18	2.13	2.54	2.54	2.75	2.34	1.92	2.96	2.75	2.75	2.13	2.44	2.13
19	2.13	2.54	2.44	3.24	2.34	2.02	3.24	3.24	2.34	1.92	2.44	2.13
20	2.13	2.44	2.44	3.24	2.34	1.92	3.24	2.96	2.75	1.92	2.13	2.13
21	2.13	2.54	2.54	3.24	2.96	2.13	2.34	2.54	2.34	1.92	2.02	2.34
22	2.23	2.13	2.44	2.96	3.65	2.54	2.23	2.75	2.54	2.13	2.23	2.34
23	2.34	2.13	2.54	2.75	3.65	2.34	1.92	2.75	2.75	2.13	2.44	1.92
24	2.02	2.13	2.34	3.38	3.38	2.44	1.74	2.75	2.44	1.92	2.86	2.13
25	2.13	2.34	2.54	3.93	3.24	1.92	1.92	2.65	2.44	1.92	3.24	1.92
26	2.23	3.52	2.34	3.65	2.96	1.74	1.92	2.96	2.23	2.02	3.24	1.92
27	3.24	2.96	2.13	4.35	3.10	1.92	2.34	1.92	4.35	2.02	2.75	2.13
28	2.75	4.35	2.34	4.49	3.38	2.13	2.34	1.92	2.44	2.34	2.96	2.13
29	3.79	2.13	2.13	4.21	3.38	2.13	2.13	2.13	2.13	2.23	2.75	2.13
30	2.34	2.75	2.75	4.49	2.96	2.44	2.65	1.92	1.92	2.13	2.34	2.02
31	2.96	2.75	2.75	3.24	3.24	2.96	2.96	2.34	2.34	2.54	2.54	2.02
Sum	71.16	72.33	78.94	95.50	91.95	83.60	81.50	82.07	72.97	64.23	77.25	69.94
Current Year 1985									Period 1943-1985			
Month	# Extreme Gage Feet		# Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	0.46	0.31	29	3.79	117	2.02	2.30	141	309	2,790	99	
Feb.	.50	.32	28	4.35	122	2.13	2.58	143	281	2,822	90.2	
Mar.	.46	.32	2	3.79	127	2.13	2.55	157	319	3,154	87.1	
Apr.	.51	.36	128	4.49	18	2.54	3.18	189	338	2,222	97	
May	.45	.34	122	3.65	118	2.34	2.97	182	265	1,799	73	
June	.53	.28	1	4.76	26	1.74	2.79	166	258	1,686	61	
July	.45	.28	3	3.65	24	1.74	2.63	162	239	1,712	59	
Aug.	.45	.30	1	3.65	127	1.92	2.65	163	283	1,672	65.7	
Sept.	.50	.26	27	4.35	4	1.55	2.43	145	266	1,406	83.5	
Oct.	.36	.28	31	2.54	4	1.74	2.07	127	281	1,845	61.6	
Nov.	.47	.31	7	3.93	21	2.02	2.57	153	290	2,080	62.4	
Dec.	.37	.30	5	2.65	123	1.92	2.26	139	274	1,686	80.0	
Yearly	0.53	0.26		4.76		1.55	2.58	1,867	3,403	22,146	1,071	
	Meters		Cubic Meters per Second					Thousands of Cubic Meters				
	0.16	0.08		0.13		0.04	0.07	2,303	4,198	27,317	1,321	

0 Mean daily

1 And other days

NEW RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder located on the left (west) bank of the river in the limits of the city of Calexico, California, 1,400 feet (427 m) downstream (north) from the international land boundary between the United States and Mexico. Measurements are made from a foot bridge at the gage.

RECORDS: Based on a continuous record of gage heights and current meter measurements by the Imperial Irrigation District. Records computed and furnished by the District. Records available: June 1942 through 1985.

REMARKS: The New River flows northward from Mexico into the United States and thence into the Salton Sea. The flow at this station normally comprises 1) a portion of the waste and drainage water from the irrigation system in the Mexicali Valley, and 2) sewage and other wastes from Mexicali, Baja California. Flood waters enter the river from local drainage in Mexico, and such waters can reach damaging rates during violent desert storms. Waste flows from the Mexican system of canals are limited to an average annual quantity of 35,000 acre-feet (43,172,000 m³) during any successive five-year period under the provisions of Minute No. 197 of the Commission.

EXTREMES: Maximum mean daily discharge, 1,030 second-feet (29.2 m³/sec) on December 9, 1982; minimum mean daily discharge, 2 second-feet (0.06 m³/sec) on May 14, 1945. Prior to the period of record, and since 1900, much higher flows occurred. During the years 1905 to 1907, when the Colorado River flowed into the Salton Sea, a considerable part of its flow passed through the New River channel.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	355	340	308	355	537	292	359	366	368	382	277	355
2	323	337	328	383	460	300	355	341	397	378	283	392
3	303	335	355	383	405	299	355	331	402	362	303	393
4	291	398	367	372	391	332	348	336	409	343	318	368
5	285	467	388	357	422	338	338	347	379	317	325	324
6	300	484	379	352	461	338	323	364	376	338	322	303
7	323	455	338	405	473	336	299	386	386	330	327	321
8	364	422	322	443	464	326	297	382	383	349	328	326
9	333	362	323	502	445	317	315	356	383	344	309	348
10	323	367	349	449	413	299	333	357	381	355	323	338
11	316	432	383	394	405	314	354	344	378	376	343	519
12	272	449	401	362	428	326	327	343	400	390	357	495
13	260	459	385	351	444	298	317	366	401	383	365	517
14	268	435	352	371	466	286	317	366	395	348	375	438
15	291	380	331	377	432	306	333	351	423	349	370	387
16	325	359	302	399	393	334	373	327	412	354	359	384
17	310	332	311	388	358	318	393	307	376	344	341	392
18	270	317	326	361	331	307	407	325	391	333	333	369
19	259	352	334	375	323	297	393	365	393	317	319	351
20	253	379	353	399	343	308	382	370	399	313	309	331
21	269	356	358	433	370	313	373	386	388	314	294	323
22	288	347	357	465	387	312	356	391	370	297	318	321
23	270	341	358	504	379	317	368	381	336	279	347	320
24	256	343	367	520	351	325	355	346	344	283	357	335
25	243	345	355	511	331	332	348	340	348	289	401	360
26	257	351	346	491	341	333	345	358	332	306	463	389
27	296	358	355	504	344	320	337	376	491	323	481	389
28	358	322	338	511	329	321	332	400	421	337	454	370
29	402		313	580	307	320	338	380	429	338	399	352
30	379		310	647	311	350	344	350	395	328	357	333
31	333		326		312		357	334		300		344
Sum	9,375	10,624	10,718	12,944	12,156	9,514	10,771	11,072	11,686	10,399	10,457	11,487
Current Year 1985									Period 1943-1985			
Month	Extreme Gage ± Feet		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	39.17	40.55	29	40.2	25	243	302	18,595	8,867	22,171	1,751	
Feb.	38.27	40.01	6	484	18	317	379	21,072	7,857	21,072	1,258	
Mar.	39.10	40.12	12	401	16	302	346	21,259	8,782	22,056	1,008	
Apr.	37.82	39.71	30	647	13	351	431	25,674	9,139	25,674	1,390	
May	37.91	40.08	1	537	29	307	392	24,111	8,314	24,111	629	
June	39.67	40.29	30	350	14	286	317	18,871	7,101	20,287	1,087	
July	39.12	40.18	18	407	8	297	347	21,364	7,517	22,998	817	
Aug.	39.18	40.08	28	400	17	307	357	21,961	8,640	27,618	1,139	
Sept.	38.33	39.80	27	491	26	332	390	23,179	8,361	23,714	1,795	
Oct.	39.28	40.35	12	390	23	279	335	20,626	8,377	22,758	2,081	
Nov.	38.43	40.37	27	481	1	277	349	20,741	7,891	20,741	2,483	
Dec.	38.07	39.96	11	519	6	303	371	22,784	8,927	22,784	1,763	
Yearly	37.82	40.55		647		243	359	260,237	99,773	267,896	24,573	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	11.53	12.36		18.3		6.88	10.2	320,997	123,068	330,444	30,310	

9 Mean daily

** Feet below mean sea level

WASTES FROM MEXICALI POTABLE WATER PLANT TO NEW RIVER IN MEXICO

DESCRIPTION: An 11.5-foot (3.50 m) Parshall flume installed by the State Commission of Public Services of Mexicali. Located 1.2 miles (2.0 km) upstream of the pumping plant on the supply canal. Excess water discharges into an open channel, thence into a 36-inch (91 cm) diameter pipe that empties into Rivera Drain (Drain 134), which is 1.2 miles (2.0 km) below the plant and 1.2 miles (2.0 km) south of the international boundary. From this point the waste is carried by a closed concrete box conduit into New River.

RECORDS: During 1985 the mean daily flows were computed from the total inflow to the potable water plant as measured at the Parshall flume, less the water pumped to the city and the water used in the maintenance of the plant. The records are obtained and furnished by the State Commission of Public Services of Mexicali. Records available: January 1968 through December 1985.

REMARKS: The plant began operation on September 28, 1963 by the State Commission of Public Services of Mexicali. Before 1968 the flow was small and infrequent. The potable water plant obtains water from the West Main Canal, which is a part of Mexico's system of canals in the Colorado Irrigation System. Excess water discharges into a closed conduit that empties into New River 0.9 mile (1.4 km) upstream of the international boundary.

EXTREMES: Maximum instantaneous discharge, 81.9 second-feet (2.32 m³/sec) on March 26, 1969; minimum instantaneous discharge, zero during several days in the years 1977 through 1985.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	1.8	0	1.8	1.8	2.1	1.8	1.8	1.8	1.8	1.8
2	0	0	0	1.8	1.8	1.8	1.1	1.8	1.8	1.8	1.8	1.8
3	1.1	0	1.1	1.8	1.1	1.8	.7	1.8	1.8	1.8	1.8	1.8
4	0	0	1.8	1.8	2.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
5	0	0	3.2	2.5	2.1	0	1.1	1.8	1.8	1.8	1.8	1.8
6	.7	0	1.8	1.8	.7	1.1	2.1	1.8	1.8	1.8	1.8	1.8
7	1.1	0	2.5	1.8	0	0	1.8	1.8	1.8	1.8	1.8	1.1
8	1.1	0	.7	0	2.8	1.8	0	1.8	1.8	1.8	1.8	1.8
9	.7	0	.7	2.1	1.8	2.8	1.8	1.8	1.8	1.8	1.8	0
10	0	0	2.8	1.8	1.8	.7	2.5	0	1.8	1.8	1.8	1.8
11	.7	0	1.8	1.1	1.8	1.8	1.8	2.5	2.1	1.8	1.8	0
12	0	0	2.1	.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0
13	0	0	1.8	1.8	.4	.7	1.8	1.8	1.8	1.8	1.8	1.1
14	0	0	1.8	1.1	0	0	1.8	1.8	1.8	1.8	1.8	1.1
15	1.1	0	1.8	1.8	1.1	2.5	2.5	1.8	1.8	1.8	1.8	1.1
16	.7	0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.1
17	1.1	0	1.1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
18	.7	0	1.8	1.8	1.8	1.8	2.1	1.8	2.8	1.8	1.8	1.8
19	0	0	2.1	1.1	1.8	1.8	1.8	2.1	1.8	1.8	1.8	1.8
20	0	.7	2.1	1.8	1.8	1.8	1.8	0	2.1	1.8	1.8	1.1
21	1.1	0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.1
22	1.8	0	1.8	1.8	1.8	1.8	1.8	2.1	1.8	1.8	1.8	1.1
23	1.8	0	1.8	2.1	1.1	1.8	0	1.8	1.8	1.8	1.8	1.8
24	0	0	1.8	1.8	1.1	1.8	1.8	1.8	1.8	1.8	1.8	1.1
25	0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.1
26	0	0	1.8	1.8	1.8	1.8	2.1	1.8	1.8	1.8	1.8	1.8
27	0	.7	1.8	1.8	1.8	1.8	.7	1.8	2.1	1.8	1.8	1.8
28	0	0	1.8	.7	0	1.8	1.8	1.8	2.8	1.8	1.8	1.8
29	0	0	1.8	1.8	1.8	1.8	1.1	1.8	2.1	1.8	1.8	1.8
30	0	0	1.8	.7	1.8	1.1	1.8	1.8	1.8	.7	1.8	1.8
31	.4	0	1.8	1.8	1.8	1.8	1.8	1.8	.7	1.8	1.8	1.1
Sum	14.1	3.2	54.4	46.3	47.4	46.7	50.5	53.5	57.2	53.6	54.0	42.7
Current Year 1985									Period 1968-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			122	1.8	1	0	0.4	27.3	173	520	0	
Feb.			25	1.8	1	0	.1	6.3	105	311	0	
Mar.			5	3.2	2	0	1.8	106	220	871	33.6	
Apr.			5	2.5	1	0	1.4	90.0	208	431	89.2	
May			14	2.8	1	0	1.4	92.4	221	435	46.2	
June			9	2.8	1	0	1.4	90.8	197	409	21.0	
July			110	2.5	1	0	1.8	98.9	250	528	0	
Aug.			11	2.5	110	0	1.8	105	277	596	77.7	
Sept.			118	2.8	1	1.8	1.8	112	259	549	67.2	
Oct.			1	1.8	130	.7	1.8	105	240	507	91.6	
Nov.			1	1.8	1	1.8	1.8	105	211	504	90.0	
Dec.			1	1.8	1	0	1.4	82.7	198	597	32.9	
Yearly				3.2		0	1.4	1,021	2,605	5,359	940	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.09		0	0.04	1,260	3,213	6,610	1,160	

g Mean daily

1 And other days

WASTEWATERS FROM MEXICAN SYSTEM OF CANALS ENTERING THE UNITED STATES

DESCRIPTION: During 1985 the only flow to the New River in Mexico was waste from the City of Mexicali Potable Water Plant, which discharges into Rivera Drain and then to New River, and drainage water coming from the Colorado River District system of canals that enter the New River below Laguna Xochimilco.

RECORDS: Records of the Potable Water Plant are based on flows measured on a Parshall flume less pumping to the city. Records obtained and furnished by the State Commission of Public Services of Mexicali. Records available: Wisteria Wasteway, January 1951 through 1975; Sifon Wasteway, January 1952 to April 30, 1964; Pueblo Nuevo Wasteway, January 1956 through 1965; and the Potable Water Plant, January 1968 through December 1985.

REMARKS: To obtain data for Sifon and Pueblo Nuevo Wasteways, see bulletins 1 to 6 (1960-1965); and for Wisteria Wasteway, bulletins 1 to 16 (1960-1975). For data on wastes from Potable Water Plant, see page 56 of this bulletin.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1956-1985		
		Average	Maximum	Minimum
January	27.3	1,013	8,758	6.3
February	6.3	725	7,281	6.3
March	106	509	2,610	21.7
April	90.0	456	3,194	16.1
May	92.4	311	1,176	9.1
June	90.8	406	5,670	0
July	98.9	612	10,251	0
August	105	544	4,137	0
September	112	450	3,215	21.0
October	105	597	3,474	8.4
November	105	622	3,784	0
December	82.7	978	8,691	0
Yearly	1,021	7,225	27,430	399
	Thousands of Cubic Meters			
	1,260	8,912	33,835	492

SALTON SEA - ELEVATIONS OF WATER SURFACE

DESCRIPTION: Water-stage recorder and staff gage located on the western shore of the Salton Sea, 15.5 miles (24.9 km) northwest of Westmorland, Imperial County, California. The Salton Sea is the sink of a closed basin which has a drainage area of 8,360 square miles (21,652 km²). Zero of the gage is 250.00 feet (76.2 m) below mean sea level, U. S. C. & G. S. datum.

RECORDS: Records of water surface elevations available from November 1904 through 1985. From January 1925 to October 22, 1951, once monthly records of elevations were collected by Imperial Irrigation District from a bench mark at Figtree John's Spring, about 22 miles (35.4 km) northwest along the western shore from the present gage. Since October 24, 1951, a continuous record of gage heights has been obtained by the U. S. Geological Survey at new gaging station published as "Salton Sea near Westmorland, California." The elevation of the old station is at a datum of one foot (0.30 m) higher than that of the present station. All records reported below and the area and capacity table are adjusted to the datum of the present station.

REMARKS: Runoff from the basin, irrigation drainage and waste water from Imperial and Coachella Valleys in the United States, and drainage and waste water from part of the Mexicali Valley in Mexico discharge into the Salton Sea. Water from Mexico enters the United States in the Alamo and New River channels. The bottom of the sea is 277.7 feet (84.6 m) below mean sea level, U. S. C. & G. S. datum.

EXTREMES: Maximum elevation during year, 226.9 feet (69.2 m) below mean sea level. Minimum elevation during year, 228.1 feet (69.5 m) below mean sea level. Extremes for period of record, maximum elevation 195.9 feet (59.7 m) below mean sea level, February 10 to March 29, 1907; minimum elevation since 1906, 251.6 feet (76.7 m) below mean sea level in November 1924.

MEAN DAILY WATER SURFACE ELEVATION IN FEET BELOW MEAN SEA LEVEL - 1985

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	227.6	227.5	227.2	227.0	226.9	227.0	227.2	227.4	227.7	227.9	228.0	228.0
2	227.6	227.4	227.2	227.0	226.9	227.0	227.2	227.4	227.7	227.9	228.0	228.0
3	227.6	227.4	227.2	227.0	226.9	227.0	227.2	227.4	227.7	227.9	228.0	228.0
4	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.7	227.9	228.0	228.0
5	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.7	227.9	228.0	228.0
6	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.8	227.9	228.0	228.0
7	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.8	227.9	228.0	228.0
8	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.8	227.9	228.0	228.0
9	227.6	227.4	227.2	227.0	226.9	227.1	227.2	227.5	227.8	227.9	228.0	228.0
10	227.6	227.4	227.1	226.9	226.9	227.1	227.2	227.5	227.9	227.9	228.0	228.0
11	227.6	227.4	227.1	226.9	226.9	227.1	227.2	227.5	227.9	227.9	228.0	228.0
12	227.6	227.4	227.1	226.9	226.9	227.1	227.2	227.5	227.9	227.9	228.0	228.0
13	227.5	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
14	227.5	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
15	227.5	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
16	227.6	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
17	227.6	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
18	227.6	227.3	227.1	226.9	226.9	227.1	227.2	227.6	228.0	228.0	228.0	228.0
19	227.5	227.3	227.1	226.9	226.9	227.1	227.3	227.6	228.0	228.0	228.1	228.0
20	227.5	227.3	227.1	226.9	226.9	227.1	227.3	227.6	228.0	228.0	228.1	228.0
21	227.5	227.3	227.1	226.9	226.9	227.1	227.3	227.6	228.0	228.0	228.1	228.0
22	227.5	227.3	227.1	226.9	226.9	227.1	227.3	227.6	228.0	228.0	228.1	228.0
23	227.5	227.3	227.1	226.9	226.9	227.1	227.3	227.6	228.0	228.0	228.1	228.0
24	227.5	227.3	227.1	226.9	226.9	227.2	227.3	227.6	228.0	228.0	228.1	228.0
25	227.5	227.2	227.1	226.9	226.9	227.2	227.3	227.7	227.9	228.0	228.0	228.0
26	227.5	227.2	227.1	226.9	226.9	227.2	227.3	227.7	227.9	228.0	228.0	228.0
27	227.5	227.2	227.1	226.9	226.9	227.2	227.3	227.7	227.9	228.0	228.0	228.0
28	227.5	227.2	227.1	226.9	226.9	227.2	227.3	227.7	227.9	228.0	228.0	228.0
29	227.5	227.2	227.1	226.9	227.0	227.2	227.3	227.7	227.9	228.0	228.0	228.0
30	227.5	227.1	226.9	227.0	227.0	227.2	227.4	227.7	227.9	228.0	228.0	228.0
31	227.5	227.0	227.0	227.0	227.0	227.0	227.4	227.7	227.9	228.0	228.0	228.0
Avg.	227.5	227.3	227.1	226.9	226.9	227.1	227.2	227.6	227.9	228.0	228.0	228.0

Current Year 1985			Period 1935-1985			Area and Capacity Table		
Month	# Extreme Elevation Feet		Elevation Feet			Elevation	Area	Capacity
	High	Low	# Average	# Maximum	! Minimum	Feet Below M.S.L.	Acres	Acres-Feet
Jan.	227.5	227.6	236.11	227.4	249.3	277.7	0	0
Feb.	227.2	227.5	235.81	227.2	248.8	274.0	20,600	25,700
Mar.	227.0	227.2	235.54	227.0	248.6	270.0	62,900	188,700
Apr.	226.9	227.0	235.35	226.9	248.7	266.0	94,600	510,600
May	226.9	227.0	235.33	226.8	248.5	260.0	122,600	1,170,000
June	227.0	227.2	235.48	227.0	248.8	256.0	134,700	1,684,000
July	227.2	227.4	235.65	227.1	249.1	252.0	148,800	2,250,000
Aug.	227.4	227.7	235.83	227.2	249.4	244.0	179,700	3,562,000
Sept.	227.7	228.0	236.02	227.3	249.4	240.0	196,900	4,315,000
Oct.	227.9	228.0	236.09	227.4	249.8	235.0	221,800	5,360,000
Nov.	228.0	228.1	236.12	227.5	250.0	230.0	235,800	6,504,000
Dec.	228.0	228.0	235.99	227.5	249.6	220.0	262,000	8,993,000
						210.0	288,500	11,740,000
						200.0	315,500	14,760,000
Yearly	226.9	228.1	235.78	227.1	250.0			

Mean daily

Mean monthly

! Reading near first day of month

CHEMICAL ANALYSES OF WATER SAMPLES

The tables below are based on bi-annual samples collected and analyzed by the State of California Department of Water Resources. New River samples prior to 1985 collected and analyzed by the U. S. Geological Survey. Beginning December 1971, not all constituents analyzed.

Samples from the Alamo River are taken north of the international boundary at upstream end of box culvert under the All-American Canal. Flow at this point includes drainage flows across international boundary and flows from drain intercepts along toe of south bank of All-American Canal. Samples from New River are taken from the right bank at road bridge 450 feet north of international boundary. Records of sampling extend from April 1951 through 1985.

ALAMO RIVER

1985	Time	Streamflow Momentary	Specific Conductance	pH	Hardness, Total (as CaCO ₃)	Sulfate ion (SO ₄) Dissolved	Chloride ion (Cl) Dissolved	Solids Dissolved (Calculated)
Date	Std.	Sec.-Ft.	Microhmhos	Units	mg/L	mg/L	mg/L	
Mar. 19	1255		5,520	7.8	1,080	1,020	1,180	3,810
June 7	0830		4,390	7.8	870	812	864	2,900
Sep. 11	1020		4,360	7.8	826	786	854	2,860
Dec. 17	1225		5,960	7.3	1,150	917	1,360	4,000

NEW RIVER

1985	Time	Streamflow Momentary	Specific Conductance	pH	Hardness, Total (as CaCO ₃)	Sulfate ion (SO ₄) Dissolved	Chloride ion (Cl) Dissolved	Solids Dissolved (Calculated)
Date	Std.	Sec.-Ft.	Microhmhos	Units	mg/L	mg/L	mg/L	mg/L
Mar. 19	1100	355	5,890	7.4	1,010	731	1,520	3,740
June 7	0700	368	4,450	7.6	855	662	1,040	3,100

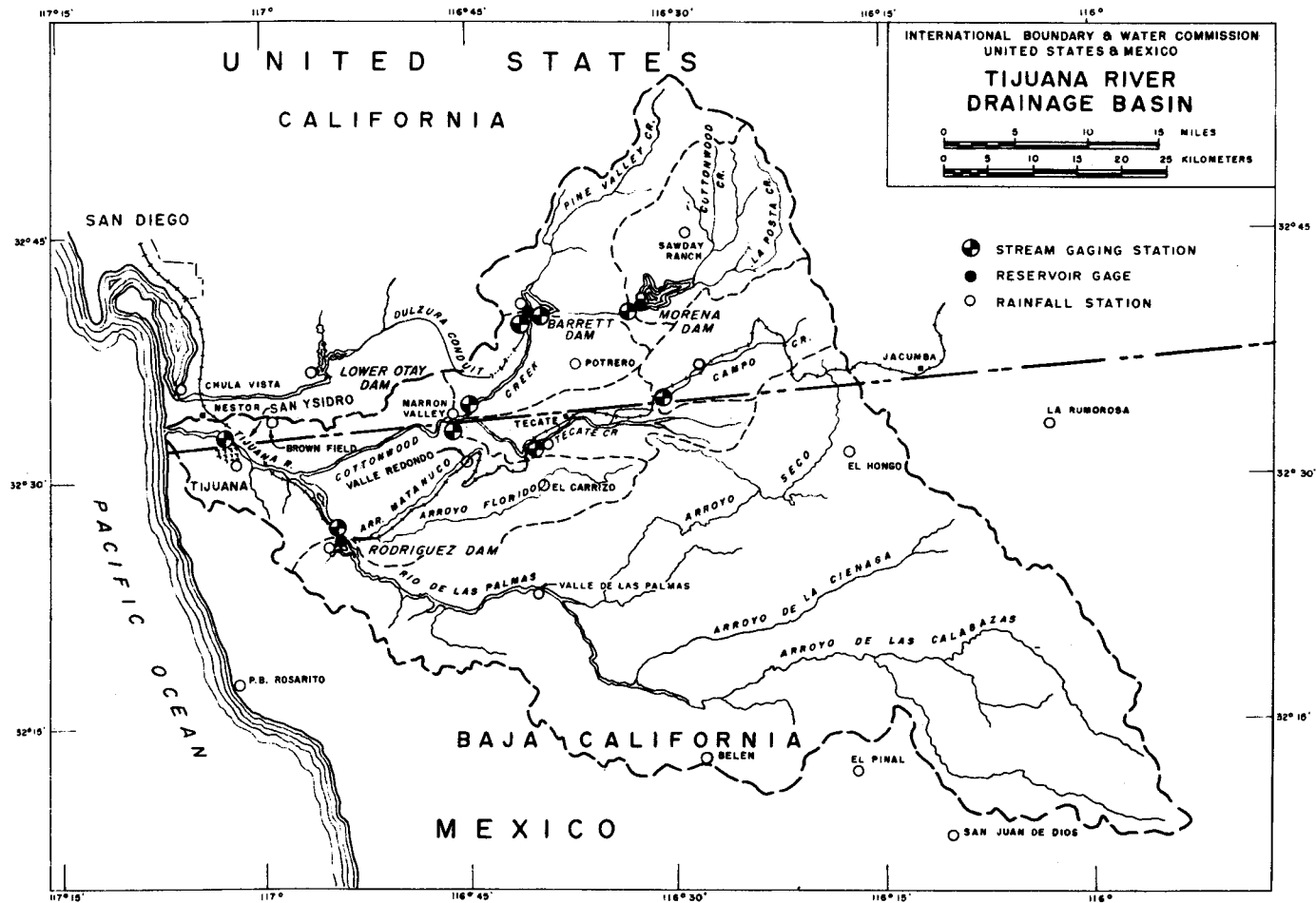
SPECIFIC CONDUCTANCE OF WATER SAMPLES

The following table shows specific conductance of individual water samples from the New River in Mexico at the international boundary. Samples were taken by the Mexican Section of the Commission, who also made the determinations.

NEW RIVER AT INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1985

January	February	April	June	July	September	November
2 4,130	20 6,440	10 4,780	5 2,700	31 3,300	18 3,120	6 4,000
9 4,680	27 5,320	17 4,440	12 3,470	August	25 3,410	13 4,110
16 5,100	March	24 2,570	19 2,590	7 4,580	October	20 3,560
23 6,180	6 4,810	May	26 2,470	14 3,120	2 6,480	27 3,040
30 5,150	13 5,850	2 4,210	July	21 4,010	9 5,380	December
February	20 6,020	8 4,970	3 3,220	28 3,200	16 4,240	4 4,840
6 6,710	27 5,940	15 2,680	10 3,970	September	23 2,550	11 2,400
13 3,720	April	22 4,240	17 3,450	4 6,750	30 4,300	18 3,470
	3 4,950	29 2,960	24 3,440	11 5,240		



COTTONWOOD CREEK ABOVE MORENA DAM, CALIFORNIA

DESCRIPTION: Staff gage located on east side of outlet tower immediately upstream from face of Morena Dam. The dam is located on Cottonwood Creek 1.8 miles (2.9 km) upstream from the mouth of Hauser Creek, 8.5 miles (13.7 km) upstream from Barrett Dam, and about 20 miles (32.2 km) upstream from the international boundary. The zero of the gage is 2,882.4 feet (878.56 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Reservoir inflows shown below were computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, and rainfall, by the International Boundary and Water Commission, United States Section. They represent all water reaching Morena Reservoir, including rainfall on reservoir water surface. Basic data were furnished by the city of San Diego, California. Records April 1911 through 1985.

REMARKS: Storage began in Morena Reservoir March 1910. Reservoir capacity and area ratings date from 1910 when Morena Dam was completed. Records for 1985 computed on basis of area-capacity curves determined from 1948 resurvey. Various changes have been made to the spillway section since construction of the dam. Elevation of the present crest of ungated spillway is 157.00 feet (47.85 m), gage datum. Reservoir capacity at spillway crest, 1948 survey, is 50,210 acre-feet (61,934,000 m³). The entire capacity of Morena Reservoir is used to furnish a part of the water supply of the city of San Diego, California. Water is released from Morena Reservoir down Cottonwood Creek to Barrett Reservoir as required.

EXTREMES: Maximum monthly inflow since 1937, 45,274 acre-feet (55,845,000 m³), March 1983. Prior to 1937, maximum monthly inflow, 37,200 acre-feet (45,886,000 m³), January 1916; minimum no flow during parts of many years.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1937-1985		
		Average	Maximum	Minimum
January	926	704	7,472	0
February	1,176	2,119	33,569	8.0
March	1,096	3,127	45,274	19.3
April	687	1,777	23,130	3.3
May	209	904	15,113	0
June	5.8	463	8,247	0
July	119	310	6,203	0
August	0	261	7,228	0
September	56.3	176	5,133	0
October	110	152	3,905	0
November	577	264	4,567	0
December	812	708	7,679	4.4
Yearly	5,774	10,965	143,966	121
	Thousands of Cubic Meters			
	7,122	13,525	177,579	149

COTTONWOOD CREEK BELOW MORENA DAM, CALIFORNIA

DESCRIPTION: Two water-stage recorders, one on the upstream side of the southeast abutment of Morena Dam for measuring head on the spillway crest and one immediately below the dam with a rectangular control weir for measuring ordinary reservoir releases, and cableway located about 0.8 mile (1.3 km) downstream from the dam.

Discharge measurements made at the cableway include leakage, controlled releases, and spillway discharges.

RECORDS: Monthly records shown below represent the water available immediately below Morena Dam, consisting of spillway waste, draft, and leakage from the dam. They are computed by the International Boundary and Water Commission, United States Section, from basic data furnished by the city of San Diego, California. Records available: January 1911 through 1985.

REMARKS: Flows at this station are regulated by Morena Dam; storage began March 1910. Water is released from Morena Reservoir as required and flows down the natural channel of Cottonwood Creek to Barrett Reservoir. There are no major diversions above Morena Dam.

EXTREMES: Maximum monthly discharge since 1937, 45,088 acre-feet (55,615,000 m³) March 1983. Prior to 1937, maximum monthly discharge, 21,400 acre-feet (26,397,000 m³), February 1916; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1937-1985		
		Average	Maximum	Minimum
January	350	185	2,094	0
February	316	912	15,926	0
March	350	1,794	45,088	0
April	339	1,405	22,829	0
May	350	721	14,674	0
June	339	514	7,507	0
July	350	307	5,056	0
August	350	290	6,435	0
September	339	338	5,880	0
October	350	176	3,761	0
November	339	204	4,111	0
December	350	425	7,377	0
Yearly	4,122	7,271	136,550	0
	Thousands of Cubic Meters			
	5,084	8,969	168,432	0

COTTONWOOD CREEK ABOVE BARRETT DAM, CALIFORNIA

DESCRIPTION: Staff gage located immediately upstream from face of dam on west side of outlet tower. Barrett Dam is located on Cottonwood Creek 8.5 miles (13.7 km) downstream from Morena Dam, 1 mile (1.6 km) downstream from the mouth of Pine Valley Creek, and about 12 miles (19.3 km) upstream from the international boundary. Zero of gage is 1,446.12 feet (440.78 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records reported below represent all water reaching Barrett Dam from the sub-basin below Morena Dam, including rainfall on the reservoir water surface. Leakage, releases, and spills from Morena Reservoir are not included. The inflows were computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, and rainfall furnished by the city of San Diego, California. Records available: January 1921 through 1985. Records of stream flow for a station at the dam site are also available for the periods 1906-1915 and 1917-1920.

REMARKS: Storage began at Barrett Reservoir in January 1921. The area-capacity-elevation curves used in the inflow calculations are dated 1948, 1951, and 1955 and were furnished by the city of San Diego, California. Capacity of reservoir at top of flash gates on spillway (gage height 168.88 feet (51.47 m)) is 44,755 acre-feet (55,205,000 m³). Capacity at spillway crest (gage height 160.88 feet (49.04 m)) is 37,950 acre-feet (46,811,000 m³). Dead storage, 719 acre-feet (887,000 m³) below lowest outlet (gage height (58.88 feet) (17.95 m)) is included in these capacities. The entire capacity of Barrett Reservoir is used to furnish a part of the water supply of the city of San Diego, California.

EXTREMES: Maximum monthly discharge since 1937, 54,755 acre-feet (67,540,000 m³) February 1980. Prior to 1937, maximum monthly discharge, 54,800 acre-feet (67,595,000 m³) February 1927; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1937-1985		
		Average	Maximum	Minimum
January	660	790	4,926	5.2
February	914	2,804	54,755	7.6
March	925	4,444	45,700	14.1
April	530	2,101	21,630	10.2
May	270	862	8,311	0
June	185	371	3,906	0
July	204	200	1,687	0
August	207	118	596	0
September	297	121	759	0
October	390	91.4	645	.1
November	1,241	190	1,241	0
December	1,037	574	5,549	1.7
Yearly	6,860	12,666	114,330	129
	Thousands of Cubic Meters			
	8,462	15,623	141,024	159

DULZURA CONDUIT BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder 0.5 mile (0.8 km) downstream from Barrett Dam on right bank of Dulzura Conduit 50 feet (15.2 m) upstream from road crossing to Barrett Dam. Elevation of gage has not been determined.

RECORDS: Computed on basis of head on control section of flume, as measured by water-stage recorder, and rating curve determined from current meter measurements. Records obtained and furnished by the city of San Diego, California. Records available: January 1909 through 1985.

REMARKS: Barrett Dam was completed in 1921. Prior to this date the intake of Dulzura Conduit was located 1.5 miles (2.4 km) upstream. The conduit carries diversions from Barrett Reservoir on Cottonwood Creek westerly across the divide into Otay Reservoir for municipal use by the city of San Diego. Prior to September 30, 1958, station was located 8 miles (12.9 km) along the conduit from Barrett Dam, being reported as "Dulzura Conduit near Dulzura;" and the draft from Barrett Reservoir was computed from the discharges obtained at the conduit gaging station, multiplied by the factor 1.05 to allow for channel loss in the reach from the reservoir to the gaging station.

EXTREMES: Since 1937: Maximum mean daily discharge, 55 second-feet (1.56 m³/sec) on March 15, 1954; minimum discharge, no flow for long periods on many occasions.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	20.4	22.9	18.2	26.7	26.1	21.4	27.8	29.0	3.0	26.5
2	0	0	20.4	22.9	24.3	26.7	26.1	21.4	27.8	28.8	14.3	26.3
3	0	0	20.4	22.9	24.3	26.7	26.1	21.2	28.0	28.8	20.6	26.5
4	0	0	20.4	23.1	24.3	26.7	26.7	21.2	27.8	29.0	20.8	26.3
5	0	0	20.4	22.9	24.3	26.7	26.1	0	27.8	28.8	26.1	26.3
6	0	0	20.4	22.9	24.3	26.9	26.1	0	28.0	28.8	25.9	26.3
7	0	0	21.9	22.7	24.3	26.9	0	0	27.8	28.8	25.9	26.3
8	0	0	23.1	22.7	24.5	26.9	0	0	27.8	28.8	25.9	26.3
9	0	12.8	23.1	22.7	24.1	26.9	0	0	28.0	29.0	25.9	26.1
10	0	18.4	23.1	22.7	24.1	26.7	18.5	15.7	28.0	29.0	25.9	26.1
11	0	24.7	23.1	22.7	24.1	26.7	18.7	22.3	28.0	29.0	26.1	26.3
12	0	30.7	23.1	22.7	24.1	26.7	30.7	29.6	28.2	28.6	26.3	26.3
13	0	30.7	23.1	22.7	24.5	26.7	30.7	29.4	28.4	28.6	26.1	26.3
14	0	30.7	23.3	22.7	24.5	26.5	30.7	29.4	28.4	28.6	26.1	26.1
15	0	30.7	23.3	22.7	26.9	26.3	30.7	29.2	28.4	28.6	26.1	26.1
16	0	20.4	23.3	22.7	27.1	26.3	30.5	29.2	28.4	28.6	26.5	26.1
17	0	20.4	23.3	22.7	27.1	26.3	30.5	29.2	28.4	28.6	26.5	26.1
18	0	20.4	23.3	22.7	27.1	26.3	30.5	29.0	28.4	28.6	26.7	26.1
19	0	20.4	23.1	22.7	27.1	26.3	30.5	29.0	28.8	28.6	26.5	25.9
20	0	20.4	23.1	22.7	27.1	26.3	30.5	29.0	29.0	28.8	26.5	25.9
21	0	20.4	23.3	22.7	26.9	26.3	30.5	28.6	28.8	28.8	26.3	26.1
22	0	20.4	23.3	22.7	26.9	26.3	30.5	28.6	28.8	28.8	26.3	26.1
23	0	20.4	23.1	22.7	26.9	26.3	30.5	28.6	28.8	28.8	26.3	26.3
24	0	20.4	23.1	26.1	26.9	26.3	8.4	28.4	28.8	28.8	26.1	26.3
25	0	20.4	23.1	26.1	26.9	26.1	8.4	28.4	28.8	28.8	26.7	26.1
26	0	20.4	23.1	26.1	26.9	26.1	8.6	28.4	29.4	28.8	26.5	26.1
27	0	20.4	23.1	26.1	26.9	26.1	15.0	28.2	29.4	28.8	26.3	26.1
28	0	20.4	23.1	26.1	26.9	26.1	21.8	28.0	29.4	29.0	26.1	26.3
29	0		23.1	0	26.9	26.1	21.6	28.0	29.0	0	26.1	26.3
30	0		22.9	12.4	26.9	26.1	21.4	28.0	29.0	0	26.5	26.3
31	0		22.9		26.7		21.4	28.0		0		0
Sum	0	443.9	699.7	666.4	792.0	794.0	687.2	697.4	853.4	806.0	740.9	786.2
Current Year 1985												
Period 1937-1985												
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.				0		0	0	0	358	2,350	0	
Feb.				30.7	1 1	0	15.9	880	403	2,130	0	
Mar.				114	23.3 1 1	20.4	22.6	1,388	547	2,330	0	
Apr.				124	26.1 29	0	22.2	1,322	799	2,860	0	
May				116	27.1 1	18.2	25.5	1,571	917	3,040	0	
June				1 6	26.9 125	26.1	26.5	1,575	958	2,920	0	
July				112	30.7 1 7	0	22.2	1,363	833	2,920	0	
Aug.				12	29.6 1 5	0	22.5	1,383	776	2,820	0	
Sept.				126	29.4 1 1	27.8	28.4	1,693	606	2,320	0	
Oct.				1 1	29.0 129	0	26.0	1,599	492	2,450	0	
Nov.				118	26.7 1 1	3.0	24.6	1,470	527	2,760	0	
Dec.				1 1	26.5 31	0	25.4	1,559	470	2,305	0	
Yearly				30.7		0	21.8	15,803	7,682	27,170	0	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.87		0	0.62	19,493	9,476	33,514		0

* Mean daily

† And other days

COTTONWOOD CREEK BELOW BARRETT DAM, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located about 2.5 miles (4.0 km) downstream from Barrett Dam and 0.5 mile (0.8 km) upstream from Rattlesnake Canyon for measuring Barrett Dam spills; and staff gage and control weir located immediately below the dam for measuring leakage. The elevation of the gage is about 1,000 feet (305 m) (from topographic map).

RECORDS: Data furnished by the city of San Diego, California. Prior to January 1953, the records were furnished by the city of San Diego and reviewed and revised by the United States Section of the Commission. The recorder is to be operated only when Barrett Reservoir is near or above spillway level. Spillway discharges have occurred in May 1943, March, April 1979, January to May of 1980, April, December 1982, and the entire year of 1983. Spillway discharges included in the period record below were computed by the city of San Diego from the head on the spillway crest, read on the reservoir gage, and applied to a broad-crested weir formula. Records available: January 1921 through 1985. Storage began in Barrett Reservoir in January 1921.

REMARKS: Records reported below represent the water available in the natural channel of Cottonwood Creek immediately below Barrett Dam. Records of draft from Barrett Reservoir are not included, inasmuch as all releases are made to Dulzura Conduit, which transports water outside the basin. Leakage is mainly through the spillway gates.

EXTREMES: Maximum monthly discharge since 1937, 90,618 acre-feet (111,775,000 m³) March 1983. Prior to 1937, maximum monthly discharge 38,400 acre-feet (47,366,000 m³) February 1927; minimum, no flow during several months of various years.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1937-1985		
		Average	Maximum	Minimum
January	0	206	6,048	0
February	0	1,931	70,318	0
March	0	3,706	90,618	0
April	0	2,112	36,820	0
May	0	895	22,933	0
June	0	408	10,947	0
July	0	151	4,306	0
August	0	102	3,410	0
September	0	9.3	298	0
October	0	4.0	123	0
November	0	85.5	4,135	0
December	0	132	4,911	0
Yearly	0	9,742	206,002	0
	Thousands of Cubic Meters			
	0	12,017	254,099	0

COTTONWOOD CREEK ABOVE TECATE CREEK NEAR DULZURA, CALIFORNIA

DESCRIPTION: Water-stage recorder and cableway located 1.6 miles (2.6 km) upstream from the international land boundary between the United States and Mexico, 0.8 mile (1.3 km) upstream from the confluence with Tecate Creek, and 5.1 miles (8.2 km) south of Dulzura, California. Low water discharge measurements are made by wading at the gage; high water measurements are made from the cableway, which is located 700 feet (213 m) downstream from the gage. Zero of the gage is 569.40 feet (173.55 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and current meter measurements or observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1985.

REMARKS: Flow is largely controlled by Barrett and Morena Reservoirs, 10 (16.1 km) and 18 miles (29.0 km), respectively, upstream from this station.

EXTREMES: Maximum discharge 11,700 second-feet (331 m³/sec) February 21, 1980 (gage height 11.15 feet) (3.40 m). Minimum discharge, no flow during part of each year.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.20	2.00	1.90	1.40	0.08	0	0	0	0	0	0	2.10
2	2.90	2.90	2.30	1.10	.07	0	0	0	0	0	0	1.60
3	2.60	3.70	2.90	.98	.07	0	0	0	0	0	0	2.20
4	2.40	6.70	2.10	.95	.07	.07	0	0	0	0	0	1.80
5	2.20	6.10	1.80	.98	.08	.03	0	0	0	0	0	1.60
6	2.30	4.00	1.70	.96	.07	0	0	0	0	0	0	1.40
7	2.60	3.50	1.70	.92	.05	0	0	0	0	0	0	1.30
8	3.00	3.20	1.70	.75	.06	0	0	0	0	0	0	1.10
9	2.60	4.60	1.70	.64	.09	0	0	0	0	0	0	1.10
10	2.40	5.60	1.60	.60	.16	0	0	0	0	0	0	1.50
11	2.20	5.10	1.50	.53	.16	0	0	0	0	0	0	5.70
12	2.00	4.80	1.50	.44	.17	0	0	0	0	0	0	6.60
13	1.90	4.30	1.40	.32	.13	0	0	0	0	0	0	4.70
14	1.80	3.20	1.40	.23	.08	0	0	0	0	0	0	3.70
15	1.70	2.90	1.40	.23	.05	0	0	0	0	0	0	3.10
16	1.70	2.80	1.40	.20	.05	0	0	0	0	0	0	2.60
17	1.70	2.70	1.30	.24	.09	0	0	0	0	0	0	2.30
18	1.70	2.50	1.30	.37	.11	0	0	0	0	0	0	2.00
19	1.70	2.50	1.30	.38	.14	0	0	0	0	0	0	1.80
20	1.70	2.80	1.20	.39	.16	0	0	0	0	0	0	1.70
21	1.70	3.80	1.20	.48	.16	0	0	0	0	0	0	1.60
22	1.70	2.80	1.20	.52	.14	0	0	0	0	0	0	1.40
23	1.70	2.40	1.00	.50	.10	0	0	0	0	0	0	1.40
24	1.70	2.20	.97	.35	.03	0	0	0	0	0	0	1.40
25	1.70	2.10	.96	.27	0	0	0	0	0	0	5.70	1.20
26	1.70	2.00	.92	.21	0	0	0	0	0	0	2.70	1.10
27	1.80	1.90	1.50	.14	0	0	0	0	0	0	.75	1.10
28	2.00	1.90	2.70	.14	0	0	0	0	0	0	.54	1.00
29	2.40		2.00	.12	0	0	0	0	0	0	1.90	1.10
30	2.20		1.70	.10	0	0	0	0	0	0	4.00	1.10
31	2.10		1.50		0	0	0	0	0	0		1.10
Sum	65.00	95.00	48.75	15.44	2.37	0.10	0	0	0	0	15.59	63.40
Current Year 1985									Period 1937-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			1	3.20	115	1.70	2.1	129	517	11,918	0	
Feb.			4	6.70	127	1.90	3.4	188	2,505	69,019	0	
Mar.			3	2.90	26	.92	1.6	96.7	4,039	88,707	0	
Apr.			1	1.40	30	.10	.5	30.6	2,427	40,240	0	
May			12	.17	125	0	.1	4.7	876	18,192	0	
June			4	.07	11	0	0	.2	290	5,919	0	
July				0	0	0	0	0	77.7	2,918	0	
Aug.				0	0	0	0	0	61.1	1,500	0	
Sept.				0	0	0	0	0	15.5	645	0	
Oct.				0	0	0	0	0	8.3	236	0	
Nov.			25	5.70	11	0	.5	30.9	44.4	1,117	0	
Dec.			12	6.60	28	1.00	2.0	126	177	2,569	0	
				6.70		0	0.8	606	11,038	178,808	0	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				0.19		0	0.02	747	13,615	220,556	0	

g Mean daily

1 And other days

CAMPO CREEK NEAR CAMPO, CALIFORNIA

DESCRIPTION: Water-stage recorder and broad-crested weir on left bank, 0.5 mile (0.8 km) upstream from the international land boundary between the United States and Mexico, just upstream from the bridge on California State Highway 94, 3.5 miles (5.6 km) southwest of Campo, California. Zero of gage is 2,178.92 feet (664.13 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements and observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1985.

REMARKS: Campo Creek originates in the United States and flows southwestward into Mexico where it joins Tecate Creek. The flow at this station was partially regulated by a small conservation reservoir, 1 mile (1.6 km) upstream, from August 1956 to February 20, 1980, when it was destroyed by a flood.

EXTREMES: Maximum discharge, 895 second-feet (25.3 m³/sec), March 24, 1983 (gage height 5.39 feet (1.64 m) present datum), from rating curve extended above 110 second-feet 3.12 m³/sec) on basis of velocity-depth relation and cross section area at the control. Minimum discharge, no flow during part of most years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.00	13.0	18.0	7.00	4.60	1.10	0.63	0.14	0.07	0.19	0.35	55.0
2	6.90	19.0	17.0	6.40	4.20	1.30	.59	.13	.07	.14	.28	26.0
3	7.20	21.0	17.0	6.70	3.80	1.30	.41	.14	.12	.12	.31	35.0
4	7.30	23.0	13.0	6.80	3.60	1.30	.20	.13	.21	.17	.33	16.0
5	7.30	24.0	11.0	6.70	3.70	.91	.24	.14	.31	.15	.41	7.90
6	7.40	23.0	11.0	6.50	3.70	.66	.25	.14	.30	.26	.39	6.30
7	7.80	22.0	11.0	6.40	3.50	.48	.25	.17	.23	.40	.40	5.30
8	7.20	22.0	10.0	6.30	3.30	.37	.21	.18	.21	.40	.47	5.20
9	6.10	23.0	8.70	6.30	3.20	.36	.20	.19	.22	.40	.50	5.20
10	6.70	23.0	9.00	6.30	3.20	.30	.20	.18	.23	.43	.52	5.50
11	7.50	21.0	9.00	6.30	3.10	.39	.20	.19	.19	.33	1.50	47.0
12	8.30	22.0	9.40	6.20	3.00	.34	.20	.22	.12	.25	5.70	25.0
13	9.00	22.0	9.10	6.10	3.20	.32	.19	.20	.09	.27	12.0	8.70
14	9.60	21.0	9.00	6.10	2.70	.34	.21	.20	.07	.22	7.40	7.10
15	9.90	22.0	9.20	6.10	2.30	.30	.30	.19	.07	.18	4.50	6.50
16	8.80	22.0	8.90	6.10	2.10	.28	.30	.18	.10	.21	2.70	6.00
17	8.10	22.0	8.70	6.10	2.10	.26	.25	.21	.14	.27	2.30	5.20
18	8.20	22.0	8.70	6.30	2.10	.27	.41	.20	.34	.26	2.30	4.90
19	8.60	23.0	9.60	6.70	2.10	.24	.50	.14	.35	.24	1.80	4.40
20	8.80	23.0	7.80	6.60	2.00	.24	.92	.13	.23	.24	1.40	4.20
21	9.30	25.0	7.40	6.90	1.90	.31	.59	.12	.18	.32	1.30	4.30
22	9.90	24.0	7.50	7.50	1.90	.26	.31	.11	.20	.37	1.30	4.30
23	10.0	23.0	7.40	7.30	1.60	.24	.26	.09	.17	.33	1.40	4.30
24	10.0	22.0	7.30	6.30	1.50	.36	.23	.08	.16	.29	2.90	4.60
25	11.0	22.0	7.20	6.00	1.30	.36	.18	.07	.18	.29	38.0	4.50
26	11.0	21.0	7.10	5.90	1.30	.33	.14	.07	.26	.28	82.0	4.30
27	12.0	21.0	7.60	5.70	1.30	.49	.13	.08	.30	.29	20.0	4.50
28	13.0	20.0	9.90	5.50	1.30	.56	.13	.07	.29	.32	13.0	4.30
29	19.0		9.30	5.40	1.20	.53	.13	.06	.26	.35	19.0	4.50
30	15.0		7.50	5.10	1.10	.58	.14	.05	.23	.36	153.0	4.60
31	15.0		7.30		1.10		.17	.04		.42		4.50

Sum	611.0	300.60	189.60	77.30	15.08	9.08	4.24	5.90	8.75	377.46	335.10
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Current Year 1985								Period 1937-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			29	19.0	9	6.10	9.4	581	182	1,087	0
Feb.			21	25.0	1	13.0	21.8	1,212	374	4,287	0
Mar.			1	18.0	26	7.10	9.7	596	644	9,394	0
Apr.			22	7.50	30	5.10	6.3	376	444	7,204	0
May			1	4.60	130	1.10	2.5	153	211	3,207	0
June			1	2	119	.24	.5	29.9	101	1,811	0
July			20	.92	127	.13	.3	18.0	59.4	1,236	0
Aug.			12	.22	31	.04	.1	8.4	60.9	1,628	0
Sept.			19	.35	1	.07	.2	11.7	44.2	984	0
Oct.			10	.43	3	.12	.3	17.4	52.5	879	0
Nov.			30	153	2	.28	12.6	749	101	1,234	0
Dec.			1	55.0	20	4.20	10.8	665	162	1,583	0
				153		0.04	6.1	4,417	2,436	31,325	0
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
				4.33		0	0.17	5,448	3,005	38,639	0

0 Mean daily

1 And other days

COTTONWOOD CREEK NEAR INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder and cableway, 0.6 mile (1.0 km) upstream from the international land boundary between the United States and Mexico, 0.5 mile (0.8 km) downstream from the confluence of Cottonwood Creek and Tecate Creek, and 5.5 miles (8.9 km) south of Dulzura, California. This station is published by the U. S. Geological Survey under the name "Tijuana River near Dulzura, California." Low water discharge measurements are made by wading at the gage. The zero of the gage is 542.42 feet (165.33 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and current meter measurements or observation of no flow. Records obtained and furnished by the U. S. Geological Survey. Records available: October 1936 through 1985.

REMARKS: Flow is partially controlled by Barrett and Morena Reservoirs, 11 (17.7 km) and 19 miles (30.6 km), respectively, upstream from this station. The flow at this station represents the amount of water passing the Marron Dam site.

EXTREMES: Maximum discharge, 13,600 second-feet (385 m³/sec), March 3, 1983 (gage height 7.03 feet); (2.14 m); maximum gage height, 11.19 feet (3.41 m) February 18, 1980; minimum discharge, no flow for part of most years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25.0	33.0	22.0	14.0	3.70	0.06	0.01	0.01	0	0	2.60	13.0
2	21.0	61.0	25.0	11.0	2.80	.06	.01	0	0	0	2.60	11.0
3	18.0	64.0	45.0	12.0	2.70	.04	.01	0	0	0	1.90	15.0
4	17.0	96.0	26.0	11.0	2.10	.03	.02	0	0	0	1.50	11.0
5	17.0	53.0	21.0	12.0	2.00	.05	.02	0	0	0	2.00	8.80
6	18.0	36.0	22.0	12.0	1.50	.03	.02	0	0	0	2.30	7.90
7	25.0	32.0	20.0	7.60	.98	.04	.02	0	0	0	2.70	7.10
8	46.0	27.0	18.0	4.40	1.30	.04	.05	0	0	0	3.00	6.40
9	37.0	37.0	23.0	4.10	1.60	.04	.18	0	0	.17	3.10	5.80
10	31.0	38.0	17.0	4.70	3.10	.02	.16	0	0	.32	3.30	8.50
11	29.0	30.0	19.0	5.40	3.50	.03	.19	0	0	1.00	4.50	105
12	28.0	23.0	14.0	4.50	2.30	.03	.15	0	0	1.30	21.0	73.0
13	30.0	21.0	13.0	6.30	1.00	.03	.16	0	0	1.30	17.0	35.0
14	28.0	19.0	15.0	7.90	.13	.02	.12	0	0	.62	8.40	34.0
15	29.0	20.0	14.0	7.40	.18	.02	.41	0	0	.26	4.60	33.0
16	26.0	20.0	11.0	5.70	.21	.02	.30	0	0	.47	3.70	30.0
17	27.0	19.0	11.0	5.80	.31	.02	.26	0	0	1.20	3.50	28.0
18	19.0	21.0	13.0	6.00	.17	.02	.37	0	0	1.90	3.20	27.0
19	23.0	23.0	15.0	5.60	.44	.02	.26	0	0	2.10	3.10	26.0
20	22.0	23.0	14.0	6.70	.75	.02	.12	0	0	2.30	3.00	26.0
21	24.0	38.0	16.0	5.60	.52	.02	.06	0	0	2.10	3.20	25.0
22	21.0	23.0	14.0	5.60	.55	.03	.04	0	0	2.40	3.30	24.0
23	20.0	24.0	12.0	5.40	.37	.04	.04	0	0	2.60	3.50	23.0
24	22.0	22.0	9.30	5.40	.44	.04	.04	0	0	2.60	3.50	23.0
25	17.0	21.0	11.0	4.60	.52	.03	.04	0	0	2.40	85.0	21.0
26	17.0	22.0	9.20	4.30	.45	.03	.02	0	0	2.10	41.0	19.0
27	16.0	20.0	9.50	5.30	.26	.02	.01	0	0	2.00	2.90	19.0
28	25.0	19.0	18.0	5.40	.17	.01	.01	0	0	1.90	2.40	17.0
29	41.0	37.0	4.60	4.60	.15	.01	.01	0	0	1.90	18.0	17.0
30	36.0	26.0	4.40	4.40	.16	0	.01	0	0	2.10	76.0	16.0
31	39.0	20.0	20.0		.09		.01	0	0	2.30	15.0	
Sum	794.0	885.0	560.0	204.70	34.45	0.87	3.13	0.01	0	37.34	335.80	730.50
Current Year 1985									Period 1937-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			8	46.0	27	16.0	25.6	1,575	1,019	20,792	0	
Feb.			4	96.0	114	19.0	31.6	1,755	4,652	143,486	0	
Mar.			3	45.0	26	9.20	18.1	1,111	6,993	133,180	0	
Apr.			1	14.0	9	4.10	6.8	406	3,345	51,060	0	
May			1	3.70	31	.09	1.1	68.3	1,136	20,955	0	
June			1	.06	30	0	0	1.7	400	8,428	0	
July			15	.41	1	.01	.1	6.2	161	3,497	0	
Aug.			1	.01	1	0	0	0	163	5,494	0	
Sept.			1	0	0	0	0	0	49.2	1,144	0	
Oct.			123	2.60	1	0	1.2	74.1	71.8	1,626	0	
Nov.			25	85.0	4	1.50	11.2	666	193	3,568	0	
Dec.			11	105	9	5.80	23.6	1,449	573	5,839	0	
				105		0	9.8	7,112	18,756	288,517	0	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
				2.97		0	0.28	8,773	23,135	355,880	0	

0 Mean daily

1 And other days

INFLOWS TO RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Rodriguez Dam is located in Mexico on Rio de las Palmas, the principal tributary to the Tijuana River, about 5.6 miles (9.0 km) upstream from its confluence with Cottonwood Creek, 10.6 miles (17.0 km) upstream from the point where the Tijuana River crosses the international boundary between the United States and Mexico, and 9.9 miles (16.0 km) southeast of Tijuana, Baja California.

RECORDS: Computed from monthly reservoir records of storage, releases, spills, leakage, evaporation, and rainfall. Records obtained by the Ministry of Agriculture and Hydraulic Resources through May 1961; from June 1961 through March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana, Baja California, and from April 1966 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1985. Storage began in Rodriguez Reservoir on September 22, 1936.

REMARKS: Records of runoff represent all water reaching Rodriguez Reservoir, including rainfall on the reservoir water surface. Area-capacity-elevation rating for reservoir used in the computations is dated 1927 when the reservoir area was initially surveyed. Elevation of crest of spillway 380.08 feet (115.85 m) above mean sea level; at top of spillway gates 410.10 feet (125.00 m) above mean sea level. Reservoir capacity at spillway crest 74,885 acre-feet (92,370,000 m³); at top of spillway gates 111,880 acre-feet (138,000,000 m³).

EXTREMES: Maximum monthly inflow, 157,453 acre-feet (194,216,000 m³); February 1980; minimum, no flow during part of most years.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1938-1985		
		Average	Maximum	Minimum
January	1,987	2,201	54,820	0
February	2,366	6,285	157,453	5.8
March	1,362	10,732	139,893	4.2
April	379	3,385	77,790	0
May	134	662	11,460	0
June	254	212	4,661	0
July	61.4	101	1,464	0
August	0	60.2	770	0
September	12.6	59.7	466	0
October	43.6	73.5	344	0
November	416	173	1,940	0
December	121	935	15,686	8.4
Yearly	7,135	24,881	309,298	254
	Thousands of Cubic Meters			
	8,801	30,690	381,515	313

DIVERSIONS FROM RODRIGUEZ RESERVOIR, BAJA CALIFORNIA

DESCRIPTION: Sparling flow meter located immediately below the dam in the pipeline which carries water from Rodriguez Reservoir to Gate No. 1 (Poblado Pressa) and to Gate No. 2 (City Aqueduct). Formerly, water for irrigation was also diverted to the North and South Canals.

RECORDS: Direct recording by Sparling flow meter. Records through May 1961 were obtained by the Ministry of Agriculture and Hydraulic Resources; from June 1961 to March 1966 by the Junta de Agua Potable y Alcantarillado del Distrito Urbano de Tijuana; and from April 1966 through 1985 by the State of Baja California Commission of Public Services for Tijuana. Records furnished by the Mexican Section of the Commission. Records available: May 1937 through 1985.

REMARKS: Beginning in January 1937, diversions for irrigation began from both sides for the Tijuana valley and for domestic use at the village by Rodriguez Dam and the city of Tijuana. Since February 1960, no water has been released for irrigation of farmlands.

EXTREMES: Maximum monthly diversion, 1,963 acre-feet (2,421,000 m³), July 1944; minimum, no flow March and April 1941, August 1960, and December 1962.

MONTHLY DISCHARGE IN ACRE-FEET

Month	Current Year 1985	Period 1938-1985		
		Average	Maximum	Minimum
January	1,425	315	1,425	1.5
February	1,331	323	1,331	.8
March	1,387	379	1,387	0
April	1,392	481	1,602	0
May	1,480	618	1,676	1.8
June	1,396	695	1,857	1.9
July	1,458	736	1,963	1.9
August	1,528	675	1,859	0
September	1,496	580	1,496	1.9
October	1,461	518	1,476	1.9
November	1,353	426	1,368	1.9
December	1,406	395	1,406	0
Yearly	17,112	6,140	17,112	29.3
	Thousands of Cubic Meters			
	21,108	7,573	21,108	36.2

TIJUANA RIVER AT INTERNATIONAL BOUNDARY

DESCRIPTION: Water-stage recorder on top of north levee about 0.7 mile (1.1 km) downstream (north) from boundary, 1.1 miles (1.8 km) upstream from the new Dairy Mart Road bridge, and 1.4 miles (2.3 km) west of the international gate at San Ysidro, California. Zero of the gage is 38.04 feet (11.59 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, staff gage readings and record of gage heights. Records obtained and furnished by the United States Section of the Commission. Records available: May 1947 through 1985.

EXTREMES: Since May 1947: Maximum instantaneous discharge, 33,100 second-feet (937 m³/sec), February 21, 1980; minimum discharge, no flow during many years since 1951.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary												
Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	63.2	29.4	16.5	17.2	3.8	1.9	2.5	3.2	4.5	2.2	4.8	43.1
2	47.0	71.5	34.4	14.4	4.7	1.9	2.5	3.2	4.6	2.8	2.5	35.8
3	30.5	74.0	57.4	11.2	4.5	2.7	2.8	3.2	4.6	3.4	5.1	39.8
4	21.8	93.4	40.0	9.8	4.5	2.5	2.4	3.2	4.6	4.0	4.1	35.6
5	15.3	87.0	27.0	8.3	4.5	2.5	2.5	3.2	4.6	4.7	10.5	23.1
6	13.0	55.5	29.1	8.3	4.5	2.5	2.5	3.8	4.6	5.3	6.2	16.5
7	27.0	41.2	25.4	8.3	4.0	2.5	2.5	3.8	4.6	5.9	3.2	12.9
8	49.3	35.6	22.3	7.3	3.8	2.5	2.5	3.6	4.6	6.5	3.8	12.9
9	48.0	45.4	30.0	6.0	3.8	2.3	2.3	3.4	4.6	6.2	5.1	14.1
10	30.0	56.3	29.0	4.7	4.3	1.9	1.9	3.5	4.7	9.3	6.9	28.7
11	22.4	39.8	21.8	3.4	4.2	1.9	1.4	3.6	4.7	4.0	368	296
12	34.3	33.9	22.6	3.2	3.8	1.9	1.4	3.6	4.7	3.8	129	91.1
13	20.5	31.2	19.1	4.1	3.5	1.9	1.2	3.8	4.7	3.8	37.3	41.0
14	21.8	28.8	19.1	4.5	3.2	2.5	2.5	3.3	4.7	3.8	21.8	39.0
15	23.1	29.4	17.8	4.5	3.6	2.5	2.3	3.8	4.7	3.8	14.8	52.5
16	21.8	33.9	20.5	4.0	3.8	2.5	3.2	4.5	4.7	4.2	17.9	28.2
17	18.2	20.1	21.8	3.8	3.8	1.9	2.5	5.1	4.8	4.5	17.8	24.6
18	19.2	18.3	19.8	5.1	3.8	1.9	1.9	5.1	4.8	5.1	14.0	30.6
19	25.4	17.8	20.5	4.5	3.2	1.9	2.5	4.3	4.8	5.1	20.6	14.7
20	25.4	24.3	20.5	4.5	3.2	1.9	3.2	4.9	5.2	6.1	15.2	15.3
21	16.2	41.9	20.5	3.8	3.2	1.9	2.5	3.4	4.8	3.8	14.1	12.6
22	15.1	32.2	19.1	3.9	3.2	2.5	2.5	6.2	3.8	13.8	20.5	14.1
23	12.4	35.6	17.8	5.1	3.2	2.5	3.2	6.7	3.8	6.8	16.5	14.1
24	14.0	32.5	16.5	5.1	3.2	2.5	3.2	4.1	3.8	7.0	11.7	14.6
25	15.3	29.0	16.5	5.1	3.2	1.9	3.8	4.5	3.8	7.1	720	12.9
26	15.3	24.6	18.4	4.2	3.2	1.9	3.4	5.1	3.8	7.3	277	11.7
27	15.9	24.6	20.3	3.8	3.2	3.0	3.2	3.2	3.8	6.2	21.9	10.5
28	25.4	17.8	22.3	4.5	3.2	2.5	3.2	4.5	3.8	4.7	19.1	9.4
29	39.5	24.2	3.8	2.5	2.9	3.2	3.2	4.5	3.8	3.2	170	9.4
30	39.4	26.1	3.8	3.2	2.8	3.2	3.2	4.5	3.6	5.1	180	11.7
31	33.9	20.3	1.9	3.2	1.9	3.2	3.2	4.5	4.5	4.5		11.9
Sum	819.6	1,105.0	736.6	180.2	111.8	68.4	81.1	127.3	132.6	164.0	2,159.4	1,028.4
Current Year 1985									Period 1947-1985			
Month	Extreme Gage Feet		Day	Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low		High	Day	Low			Average	Maximum	Minimum	
Jan.	39.75	39.15	29	113	123	11.7	26.4	1,626	2,837	72,441	0	
Feb.	40.37	39.23	2	200	117	16.5	39.5	2,192	9,739	315,328	0	
Mar.	39.84	39.19	2	143	24	14.1	23.8	1,461	13,249	293,494	0	
Apr.	39.22	39.11	1	17.8	12	3.2	6.0	357	3,433	62,938	0	
May	39.15	39.11	2	5.1	31	1.9	3.6	222	1,890	42,599	0	
June	39.15	39.10	29	3.8	17	0.9	2.3	136	499	9,696	0	
July	39.14	39.07	20	4.5	111	0	2.6	161	359	9,242	0	
Aug.	39.14	39.06	23	7.3	121	0	4.1	252	525	17,092	0	
Sept.	39.15	39.10	20	7.3	30	3.2	4.4	263	82.3	978	0	
Oct.	39.47	39.06	22	56.9	1	2	5.3	325	96.1	1,237	0	
Nov.	42.93	39.06	25	1,048	2	0	72.0	4,283	368	4,377	0	
Dec.	41.35	39.17	11	553	19	4.5	33.2	2,040	654	6,705	0	
Yearly	42.93	39.06		1,048		0	18.4	13,318	33,731	595,739	0	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	13.09	11.91		29.7		0	0.52	16,427	41,607	734,838	0	

* Estimated

■ Partly estimated

! And other days

STORED WATER IN RESERVOIRS, TIJUANA RIVER BASIN

Data are presented below for all storage reservoirs in the Tijuana River basin. The data represent contents on the last day of the month in acre-feet. The reservoir capacities indicated are total capacities at the top of the spillway gates in closed position on the controlled spillways of Barrett and Rodriguez Dams, and at spillway level for Morena Dam, which has had an uncontrolled spillway since the spillway gates were removed in 1942. The records of storage reported below for Morena, Barrett, and Rodriguez Reservoirs are based on the capacities as determined by the following surveys: Morena 1948; Barrett 1948, 1951, and 1955; and Rodriguez 1927, when the reservoir area was initially surveyed.

Records for Morena and Barrett Reservoirs are obtained and furnished by the city of San Diego and the U. S. Geological Survey. Records for Rodriguez Reservoir obtained and furnished by the State of Baja California Commission of Public Services for Tijuana.

IN ACRE-FEET

Month	MORENA RESERVOIR, CALIFORNIA (Capacity 50,210)		BARRETT RESERVOIR, CALIFORNIA (Capacity 44,760)		RODRIGUEZ RESERVOIR, BAJA CALIFORNIA (Capacity 111,880)		TOTAL IN TIJUANA RIVER BASIN RESERVOIRS (Capacity 206,850)	
	1985	Average 1937-1985	1985	Average 1937-1985	1985	Average 1937-1985	1985	Average 1937-1985
Jan.	46,456	17,807	33,038	13,256	62,295	33,643	141,789	64,706
Feb.	47,044	18,910	33,285	14,563	62,781	35,002	143,110	68,475
Mar.	47,518	20,094	33,031	16,457	62,165	39,305	142,714	75,856
Apr.	47,340	20,224	32,316	16,940	60,430	39,551	140,086	76,715
May	46,528	20,087	31,044	16,483	58,251	39,084	135,823	75,654
June	45,232	19,629	29,590	15,729	56,263	38,017	131,085	73,375
July	43,919	19,163	28,343	14,948	54,157	36,614	126,419	70,725
Aug.	42,206	18,708	27,087	14,182	51,842	35,239	121,135	68,129
Sept.	41,134	18,207	25,749	13,762	49,735	34,291	116,618	66,260
Oct.	40,254	17,908	24,703	13,356	47,851	33,504	112,808	64,768
Nov.	40,123	17,826	24,716	13,033	46,567	32,972	111,406	63,831
Dec.	40,437	18,010	24,451	13,347	44,920	33,322	109,808	64,679
Average	44,016	18,881	28,946	14,671	54,772	35,879	127,734	69,431
Maximum	47,518	! # 61,670	33,285	! * 45,920	62,781	! 112,272	143,110	! 213,600
Minimum	40,123	!! 10	24,451	!! 106	44,920	!! 0	109,808	!! 1,264

March 31, 1941 - Prior to removal of spillway gates

* April 30, 1937 - Sandbags were placed on crest of spillway

! Maximum end of month storage for period of record

!! Minimum end of month storage for period of record

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

Tabulated below are monthly records of rainfall with averages for their periods of record at stations located in California and Baja California. Daily records, where available, are on file in the offices of the United States and Mexican Sections of the Commission. For location, elevation, period of record, and the observer, see alphabetical listing of these stations on page 76.

IN THE UNITED STATES

Month	Morena Dam, California		Barrett Dam, California		Marron Valley, California		Potrero, California		Sawday Ranch, California	
	1985	Average 1906-1985	1985	Average 1907-1985	1985	Average 1951-1985	1985	Average 1914-1985	1985	Average 1950-1985
Jan.	1.55	3.77	0.90	3.41	0.50	2.82	1.34	3.40	1.46	3.38
Feb.	2.02	3.74	1.71	3.41	0	2.18	2.22	3.62	1.62	2.94
Mar.	1.47	3.51	1.98	3.18	1.20	2.87	1.60	3.21	1.38	3.39
Apr.	.57	1.70	.59	1.55	.50	1.27	.55	1.74	0	1.57
May	.09	.62	0	.54	.10	.37	.05	.60	.20	.42
June	.05	.13	.09	.06	0	.06	.15	.09	0	.05
July	1.01	.39	.17	.13	0	.04	1.23	.23	.65	.59
Aug.	0	.54	0	.24	0	.14	0	.24	0	.78
Sept.	.51	.38	.09	.25	0	.25	.20	.29	.34	.43
Oct.	1.01	.86	.58	.69	0	.39	1.01	.72	.53	.50
Nov.	5.32	1.64	7.05	1.50	0	1.45	5.85	1.62	7.07	1.91
Dec.	2.05	3.20	1.73	2.85	5.40	2.32	1.70	3.05	1.80	2.55
Yearly	15.65	20.48	14.89	17.81	7.70	14.16	15.90	18.81	15.05	18.51

Month	Campo, California		Chula Vista, California		Lower Otay Dam, California		Brown Field, California			
	1985	Average 1900-1985	1985	Average 1930-1985	1985	Average 1906-1985	1985	Average 1964-1985		
Jan.	#	3.03	0.39	1.81	0.46	2.12	0.32	1.75		
Feb.	1.59	3.22	.96	1.67	1.31	1.50	.90	1.40		
Mar.	1.46	2.83	.32	1.70	.70	2.20	.69	2.15		
Apr.	.27	1.40	.07	.82	.19	1.05	.20	1.00		
May	.04	.49	.05	.23	.09	.45	.18	.20		
June	.09	.07	0	.05	.09	.07	.09	.07		
July	1.74	.52	0	.02	0	.04	0	.05		
Aug.	T	.54	0	.09	0	.13	0	.13		
Sept.	.33	.34	.20	.17	.14	.21	.12	.16		
Oct.	.69	.62	.42	.39	.21	.33	.42	.32		
Nov.	4.53	1.42	8.13	1.22	5.14	1.42	5.16	1.70		
Dec.	1.76	2.50	1.63	1.64	1.36	1.58	1.08	1.76		
Yearly		16.98	12.17	9.81	9.69	11.10	9.16	10.69		

IN MEXICO

Month	La Rumorosa, Baja California		Valle Redondo, Baja California		Tecate, Baja California		Rodriguez Dam, Baja California		Valle de las Palmas, Baja California	
	1985	Average 1945-1985	1985	Average 1971-1985	1985	Average 1946-1959 1961-1985	1985	Average 1938-1985	1985	Average 1948-1985
Jan.	1.26	0.94	0.71	2.52	1.26	2.64	0.63	1.57	0.20	1.65
Feb.	.79	.55	1.34	2.36	1.97	1.85	.91	1.42	1.22	1.18
Mar.	T	.75	1.14	2.64	1.81	2.48	.51	1.65	.55	1.46
Apr.	T	.31	.35	.91	.55	1.10	.08	.75	.04	.63
May	0	.12	.16	.28	.16	.31	T	.16	T	.12
June	0	.04	.16	.04	.28	.12	.04	.04	0	.04
July	0	.43	0	.08	.20	.16	.04	.04	.24	.08
Aug.	T	.75	0	.20	0	.24	0	.12	0	.24
Sept.	.28	.35	.04	.28	.08	.12	.16	.24	.24	.20
Oct.	.47	.39	.39	.55	.63	.39	.55	.31	.51	.24
Nov.	3.70	.63	4.53	1.93	4.61	1.46	4.53	1.02	3.54	.91
Dec.	1.42	.79	1.50	1.65	1.73	2.13	.98	1.54	1.06	1.10
Yearly	7.91	5.83	10.31	13.31	13.27	13.78	8.43	8.78	7.60	7.72

Missing record

T Trace

RAINFALL ON THE TIJUANA RIVER WATERSHED IN INCHES

IN MEXICO

Month	P. B. Rosarito, Baja California		El Pinal, Baja California		El Hongo, Baja California		El Carrizo, Baja California		Belen, Baja California	
	1985	Average 1967-1985	1985	Average 1964-1985	1985	Average 1980-1985	1985	Average 1980-1985	1985	Average 1965-1985
Jan.	0.39	1.85	1.26	3.03	0.67	1.73	3.62	2.01	0.43	2.52
Feb.	.63	1.81	2.09	3.43	1.38	2.05	1.14	2.24	1.65	2.60
Mar.	.47	2.05	1.50	3.74	.79	3.74	.83	3.27	1.06	2.91
Apr.	.12	.71	.51	1.73	.24	.94	.24	.91	T	1.10
May	0	.28	T	.39	.08	.20	.16	.16	0	.20
June	0	.04	.04	.04	.08	.04	.08	.04	T	.08
July	.16	.04	2.72	.87	1.89	.98	.12	.24	.08	.16
Aug.	#	.08	T	.98	0	1.30	T	.20	0	.31
Sept.	.16	.20	1.10	.75	.47	.31	.12	.12	.47	.43
Oct.	1.34	.39	1.73	.47	.71	.31	.67	.31	1.69	.55
Nov.	4.72	1.34	5.75	2.20	4.13	2.28	3.35	1.97	4.13	1.77
Dec.	.94	1.34	2.64	3.03	1.02	1.61	3.11	1.93	1.02	2.13
Yearly		10.00	19.33	20.71	11.46	16.30	13.43	13.19	10.55	15.35

Missing record

T Trace

LOCATION OF RAINFALL STATIONS ON THE TIJUANA RIVER WATERSHED

The precipitation records of the stations listed alphabetically below began on the date shown and extend through 1985.

IN THE UNITED STATES

NAME OF STATION	LATI- TUDE	LONGI- TUDE	5 ELEV. (FT.)	RECORD BEGAN	OBSERVER
Barrett Dam, California	32° 41'	116° 40'	1,623	1907	City of San Diego
Brown Field, California	32° 34'	116° 59'	515	1964	City of San Diego
Campo, California	32° 38'	116° 28'	2,630	1877	Archie C. Leach
Chula Vista, California	32° 36'	117° 06'	9	1930	Western Salt Company
Lower Otay Dam, California	32° 37'	116° 56'	540	1906	City of San Diego
Harron Valley, California	32° 34'	116° 46'	550	1951	County of San Diego
Morena Dam, California	32° 41'	116° 31'	3,075	1906	City of San Diego
Potrero, California	32° 37'	116° 36'	2,400	1914	County of San Diego
Sawday Ranch, California	32° 45'	116° 29'	3,200	1950	William Tulloch

IN MEXICO

NAME OF STATION	LATI- TUDE	LONGI- TUDE	5 ELEV. (FT.)	RECORD BEGAN	OBSERVER
Belen, Baja California	32° 12'	116° 29'	1,821	1965	* S. A. R. H.
El Carrizo, Baja California	32° 29'	116° 42'	1,624	1980	S. A. R. H.
El Hongo, Baja California	32° 31'	116° 18'	3,150	1980	S. A. R. H.
El Pinal, Baja California	* 32° 11'	116° 17'	* 4,429	1964	S. A. R. H.
La Rumorosa, Baja California	32° 33'	116° 03'	4,042	1945	S. A. R. H.
P. B. Rosarito, Baja California	32° 19'	117° 02'	72	1967	S. A. R. H.
Rodriguez Dam, Baja California	32° 27'	116° 54'	394	1938	S. A. R. H.
Tecate, Baja California	32° 33'	116° 41'	1,575	1946	S. A. R. H.
Valle de Las Palmas, Baja California	32° 22'	116° 37'	919	1948	S. A. R. H.
Valle Redondo, Baja California	32° 31'	116° 45'	794	1971	S. A. R. H.

5 Elevation above mean sea level

* Ministry of Agriculture and Hydraulic Resources

* Estimated from topographic maps

EVAPORATION IN THE TIJUANA RIVER BASIN IN INCHES

Tabulated below are records of evaporation observed at three stations in California and at four stations in Baja California, with averages for their periods of record. The stations in California are observed by Western Salt Company, city of San Diego, California, and the United States Section of the Commission; those in Baja California are observed by the Ministry of Agriculture and Hydraulic Resources of Mexico. For specific location of these stations, refer to data opposite same station name shown in "Location of Rainfall Stations," page 76 in this bulletin.

Types of pans used:

1. Barrett Reservoir: January 1921 through September 1926, square 3-foot by 3-foot by 18-inch deep floating pan. October 1926 through 1985, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.
2. Morena Reservoir: October 1915 through December 1921, square 3-foot by 3-foot by 18-inch deep floating pan. January 1922 through August 1926 records are the average of evaporation in a square 3-foot by 3-foot by 18-inch deep floating pan and a land pan of the same dimensions. September 1926 through 1985, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.
3. Lower Otay Dam: January 1950 through 1985, square 3-foot by 3-foot by 18-inch deep land pan set 15 inches in ground.

IN THE UNITED STATES

Month	Morena Dam, California		Barrett Dam, California		Lower Otay Dam, California			
	1985	Average 1916-1985	1985	Average 1921-1985	1985	Average 1950-1985		
Jan.	1.59	2.11	1.61	1.88	1.92	1.91		
Feb.	1.98	2.16	1.92	2.19	1.91	2.28		
Mar.	1.96	3.29	2.82	3.39	3.02	3.33		
Apr.	3.81	4.65	4.96	4.72	5.14	4.62		
May	4.92	6.50	6.30	6.68	7.23	6.11		
June	6.67	8.38	8.24	8.23	8.99	6.89		
July	7.23	9.64	9.20	9.75	9.37	8.42		
Aug.	7.42	8.94	8.90	9.14	8.47	7.89		
Sept.	4.15	7.11	5.72	7.47	5.95	6.48		
Oct.	3.05	4.98	4.02	5.24	4.47	4.72		
Nov.	1.45	3.24	2.30	3.26	2.60	2.82		
Dec.	1.21	2.32	1.27	2.01	1.70	2.13		
Yearly	45.44	63.32	57.26	63.96	60.77	57.60		

IN MEXICO

Month	Rodriguez Dam, Baja California		Valle de las Palmas, Baja California		Valle Redondo, Baja California		El Carrizo, Baja California	
	1985	Average 1939-1942 1946-1985	1985	Average 1952-1985	1985	Average 1976-1985	1985	Average 1980-1985
Jan.	2.80	4.29	*	3.54	2.60	3.31	4.53	4.92
Feb.	3.19	4.49		3.46	2.72	3.11	4.25	4.69
Mar.	3.27	4.57		4.76	3.70	3.98	3.98	5.59
Apr.	5.51	5.59		6.22	6.38	5.71	8.50	7.17
May	6.18	5.04		7.48	7.05	7.24	8.27	7.91
June	7.64	7.72		9.17	10.47	9.65	12.80	11.22
July	8.31	8.70		10.71	10.87	10.24	11.93	11.38
Aug.	7.72	7.99		9.72	10.75	9.69	11.73	10.75
Sept.	5.55	6.77		8.31	7.36	7.48	8.46	9.13
Oct.	4.33	5.63		6.14	5.28	5.20	5.31	7.95
Nov.	3.03	4.53		4.41	2.87	3.50	4.09	5.08
Dec.	2.83	3.54		3.74	3.35	2.76	5.28	4.29
Yearly	60.35	69.17		77.56	73.39	73.03	89.13	90.47

* No record

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

The maximum, minimum, and monthly average temperature observations for United States stations are from daily readings of thermometers generally exposed in a shelter located a few feet above sod-covered ground. The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations, with maximum and minimum for their periods of record. For specific location, elevation, period of record, and the observer, refer to data opposite same station name as shown in "Location of Rainfall Stations," page 76 in this bulletin.

IN THE UNITED STATES

Month	Barrett Dam, California				Campo, California				Chula Vista, California			
	1985			Average 1931- 1985	1985			Average 1951- 1985	1985			Average 1931- 1985
	Mean	Max.	Min.		Mean	Max.	Min.		Mean	Max.	Min.	
Jan.	49.1	71	32	49.0	*	*	*	47.2	54.7	76	36	53.1
Feb.	50.1	81	29	50.7	48.3	83	23	48.4	54.9	87	33	54.3
Mar.	51.7	81	31	53.2	49.0	79	24	49.6	55.2	73	37	55.6
Apr.	61.5	90	40	57.6	57.9	92	29	53.3	61.2	89	47	58.1
May	63.6	90	45	62.6	59.2	92	31	58.5	63.4	73	50	60.8
June	71.9	103	45	68.5	67.5	102	31	65.1	*	*	*	63.3
July	79.5	107	53	76.2	75.0	105	42	73.3	73.7	97	62	67.2
Aug.	76.0	111	49	76.2	71.1	107	36	73.1	71.8	94	60	68.7
Sept.	68.3	101	44	72.5	63.1	95	30	68.9	69.6	85	52	67.6
Oct.	64.3	97	43	64.1	60.8	96	35	60.6	67.5	97	52	63.3
Nov.	53.8	86	34	55.8	50.8	84	28	52.4	58.7	83	40	58.2
Dec.	52.7	79	29	50.6	50.7	75	21	48.0	57.4	82	34	54.5
Yearly	61.9	111	29	61.4		107	21	58.2		97	33	60.4

Month	Potrero, California											
	1985			Average 1975- 1985								
	Mean	Max.	Min.									
Jan.	47.4	70	24	50.6								
Feb.	50.4	84	22	51.7								
Mar.	51.4	82	24	51.8								
Apr.	61.7	98	36	56.4								
May	64.7	98	38	61.8								
June	75.1	108	40	69.9								
July	80.4	110	48	77.0								
Aug.	77.8	110	42	76.0								
Sept.	68.2	100	40	73.8								
Oct.	64.0	98	41	64.5								
Nov.	53.4	88	30	55.8								
Dec.	54.8	83	22	52.1								
Yearly	62.4	110	22	61.8								

IN MEXICO

Month	La Rumorosa, Baja California				Tecate, Baja California				Rodriguez Dam, Baja California			
	1985		1945-1985		1985		1946-1985		1985		1938-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	*	*	81	5	72	30	100	16	75	39	90	27
Feb.	73	25	82	10	84	28	100	18	86	36	93	32
Mar.	73	25	88	16	75	28	97	23	82	36	90	32
Apr.	84	34	91	23	97	36	100	28	82	36	93	36
May	84	36	97	27	90	41	108	36	84	48	100	37
June	97	41	113	34	108	39	108	32	100	46	108	46
July	99	48	104	39	109	50	115	36	108	59	108	46
Aug.	102	50	102	46	117	45	117	34	104	55	106	50
Sept.	*	*	104	34	99	43	115	36	93	46	109	46
Oct.	88	34	95	25	102	39	106	27	99	46	108	34
Nov.	81	28	95	14	88	34	97	27	90	43	99	30
Dec.	*	*	84	10	81	27	97	23	82	36	93	27
Yearly			113	5	117	27	117	16	108	36	109	27

* Missing data

TEMPERATURE IN THE TIJUANA RIVER BASIN IN DEGREES FAHRENHEIT

IN MEXICO

Month	Valle de las Palmas, Baja California				P. B. Rosarito, Baja California				El Pinal, Baja California			
	1985		1948-1985		1985		1967-1985		1985		1964-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	70	28	91	12	75	41	93	36	63	23	77	3
Feb.	86	30	99	23	79	41	90	36	68	21	81	14
Mar.	79	28	100	28	81	41	90	34	72	25	84	19
Apr.	99	37	104	28	86	48	88	36	73	30	84	18
May	93	41	111	36	73	50	104	43	70	32	91	25
June	108	43	118	39	79	50	104	43	95	36	99	25
July	111	52	120	45	88	59	90	50	95	39	102	32
Aug.	118	45	118	41	#	#	93	50	97	36	104	32
Sept.	100	43	117	43	95	55	108	48	79	39	102	25
Oct.	104	39	109	32	90	54	100	43	77	34	95	23
Nov.	90	32	100	19	75	46	97	32	70	28	88	14
Dec.	79	25	95	21	79	39	90	36	68	23	79	10
Yearly	118	25	120	12		39	108	32	97	21	104	3

Month	Valle Redondo, Baja California				El Hongo, Baja California				El Carrizo, Baja California			
	1985		1974-1985		1985		1981-1985		1985		1980-1985	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Jan.	73	34	90	21	63	23	70	23	72	36	81	34
Feb.	84	32	95	23	79	21	79	21	81	36	88	36
Mar.	82	32	90	27	72	28	79	28	82	36	82	36
Apr.	95	41	95	32	86	36	86	30	95	43	95	39
May	86	45	106	39	90	39	100	36	84	46	102	43
June	108	45	113	41	99	43	100	39	102	50	106	48
July	109	55	111	48	106	57	106	45	109	54	109	52
Aug.	113	46	113	46	106	46	106	46	109	54	109	52
Sept.	97	46	115	39	95	43	97	37	104	50	106	48
Oct.	99	45	115	39	90	43	90	32	97	46	97	43
Nov.	88	39	97	28	79	30	82	28	86	39	91	39
Dec.	84	32	91	30	70	27	75	25	82	36	86	36
Yearly	113	32	115	21	106	21	106	21	109	36	109	34

Month	Belen, Baja California											
	1985		1965-1985									
	Max.	Min.	Max.	Min.								
Jan.	68	32	93	21								
Feb.	79	27	90	21								
Mar.	79	32	97	25								
Apr.	91	37	97	27								
May	86	36	104	32								
June	104	43	109	37								
July	104	46	113	43								
Aug.	104	46	113	46								
Sept.	95	39	111	39								
Oct.	100	41	104	21								
Nov.	86	36	93	25								
Dec.	82	27	91	19								
Yearly	104	27	113	19								

Missing data

**DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS
ALONG TIJUANA RIVER AND TRIBUTARIES
1985**

The total area within the Tijuana River basin is 1,731 square miles, as determined from the best available maps from both the United States and Mexico. The drainage areas shown below are tabulated according to their downstream sequence.

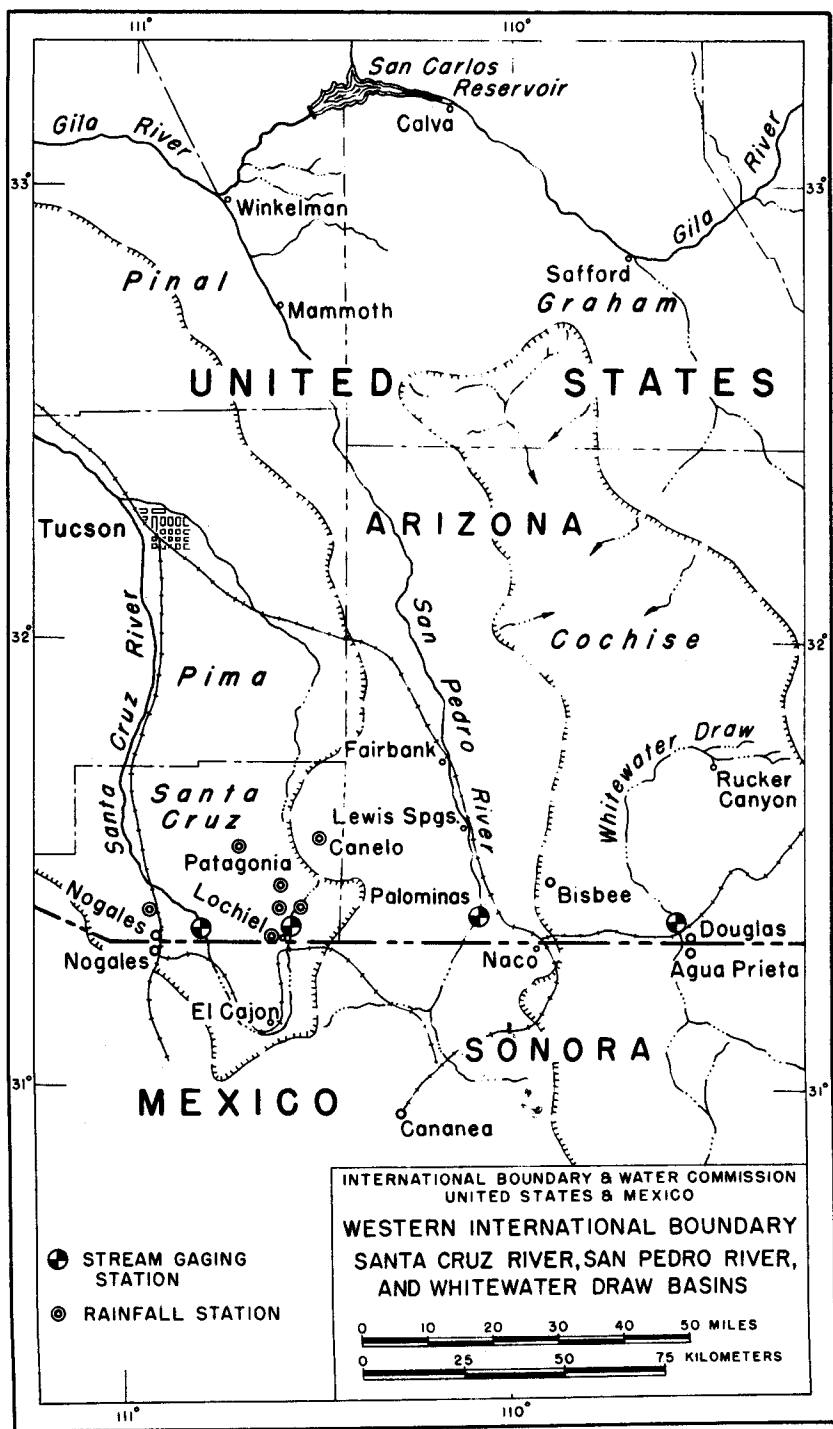
The irrigated areas, tabulated in downstream sequence, are from the most reliable sources available. Those in the United States were furnished by the Tijuana River Valley Association or estimated from aerial photographs. Those in Mexico were furnished by the Ministry of Agriculture and Hydraulic Resources of Mexico through the Mexican Section of the Commission. All irrigation in the Tijuana River basin in 1985 was by pumping from ground water.

Designation of Areas	Drainage Basin-Square Miles			Irrigated Areas-Acres		
	United States	Mexico	Total	United States	Mexico	Total
Cottonwood Creek						
above Morena Dam	114	0	114	0	0	0
Morena Dam to Barrett Dam	133	0	133	0	0	0
above Barrett Dam	247	0	247	0	0	0
below Barrett Dam and above Tecate Creek	65	0	65	0	0	0
above Tecate Creek	312	0	312	0	0	0
Campo Creek						
above International Boundary	82	4	86	0	0	0
Tecate Creek						
above International Boundary (not including Campo Creek)	19	64	83	0	0	0
Cottonwood Creek						
above International Boundary Station	413	68	481	100	0	100
Rio de las Palmas						
above Rodriguez Dam	7	981	988	0	(b) 0	0
Tijuana River						
above Nestor Gaging Station	458	1,266	1,724	(a) 625	(c) 0	625
above the Mouth	462	1,269	1,731			

(a) Data from Tijuana River Valley County Water Users Association

(b) Areas in upper valleys may be irrigated by pumping from ground water.

(c) There was no irrigation in 1985 in the Tijuana Irrigation District, Tijuana Valley, Baja California Mexico, from the Rodriguez Reservoir.



WHITewater DRAW NEAR DOUGLAS, ARIZONA

DESCRIPTION: Water-stage recorder located on U. S. Highway 80 bridge between Douglas and Bisbee, Arizona, about 450 feet (137 m) upstream from the Southern Pacific Railroad bridge, 1.5 miles (2.4 km) upstream from the international boundary, and 2 miles (3.2 km) west of Douglas, Arizona. Zero of gage is 3,909.14 feet (1,191.51 m) above mean sea level, U. S. C. & G. S. datum of 1929. Location April 26, 1972 to April 10, 1974 was 200 feet (61.0 m) upstream from bridge. Datum 4.40 feet (1.34 m) higher.

RECORDS: Based on current meter measurements or observations of no flow during the year. Computations by shifting control methods. Records obtained and furnished by the U. S. Section of the Commission. Records fair. Records available: August to October 1911 (gage heights and discharge measurements only), July to October 1912, January to June 1913, October 1913, December 1913 to June 1914, February to June 1915, October 1915 to September 1919, October 1919 to April 1922 (gage heights and discharge measurements only), July 1930 to December 1933, May 1935 to July 1947, October 1947 through 1985 (July 1954 to March 1955, monthly discharge only).

REMARKS: Diversions above this station are mainly by pumping from ground water for irrigation. Records show flow at the international boundary into Mexico except for some smelter waste water entering the stream a short distance below this station.

EXTREMES: Prior to 1936: Maximum recorded discharge, 3,450 second-feet (97.7 m³/sec) August 10, 1931 (gage height 12.15 feet (3.70 m); maximum estimated discharge, 4,050 second-feet (115 m³/sec) July 27, 1919; minimum discharge, no flow for several days of many years. Since 1936: Maximum discharge, 5,060 second-feet (143 m³/sec) August 7, 1955; maximum gage height, 16.55 feet (5.04 m) July 29, 1966; minimum daily discharge, no flow at times during most years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0.3	0.1	0.1	0.2	0	0	63.3	0	24.4	3.5	0.1
2	.1	.2	.1	.1	.1	0	0	20.8	0	39.3	2.6	.2
3	.1	.2	.1	.1	.1	0	0	95.3	0	.5	1.8	.1
4	.1	.2	.1	.1	.1	0	0	1.7	0	.1	1.3	.1
5	.1	.2	.1	.1	.1	0	0	.7	0	.1	1.0	.1
6	.1	.2	.1	.1	.1	0	0	.4	0	.1	.7	.1
7	.1	.2	.1	.1	0	0	0	.2	0	.1	.5	.1
8	.1	.2	.1	.1	0	0	0	.1	0	13.8	.3	.1
9	.1	.2	.1	.1	0	0	0	.8	0	11.3	.3	.1
10	.1	.2	.1	.1	0	0	0	.7	0	6.6	.3	.1
11	.1	.1	.1	.1	0	0	0	.6	0	.2	.2	.1
12	.1	.1	.1	.1	0	0	0	.4	1.5	.1	.2	.1
13	.1	.1	.1	.1	0	0	0	.3	.2	.1	.1	.1
14	.1	.1	.1	.1	0	0	0	.1	.1	.1	.1	.1
15	.1		.1	.1	0	0	10.0	.1	0	.1	.1	.1
16	.1	.1	.1	.1	0	0	21.0	.1	0	58.3	.1	.1
17	.1	.1	.1	.1	0	0	.3	.1	0	411	.1	.1
18	.1	.1	.1	.1	0	0	74.0	13.0	73.9	101	.1	.1
19	.1	.1	.1	0	0	0	95.0	42.3	63.9	34.5	.1	.1
20	.1	.1	.1	0	0	0	31.8	.5	1.3	37.9	.1	.1
21	.1	.1	.1	0	0	0	2.4	.2	.1	34.5	.1	.1
22	.1	.1	.1	0	0	0	6.7	.1	0	29.3	.1	.1
23	.1	.1	.1	0	0	0	6.2	.1	0	24.1	.1	.1
24	.7		.2	0	0	0	.4	.1	0	20.1	.1	.1
25	1.1	.1	.1	0	0	0	.1	.1	0	15.5	.2	.1
26	3.1	.1	.1	0	0	0	.1	0	0	12.6	.2	.1
27	1.7	.1	.1	0	0	0	7.9	0	0	9.4	3.5	.1
28	.8	.1	.1	3.9	0	0	3.7	0	71.8	7.2	.3	.1
29	.5		.1	.7	0	0	.3	0	773	5.8	.1	.1
30	.4		.1	.3	0	0	10.9	0	68.4	4.6	.1	.1
31	.3		.1		0		52.9	0		3.8		.1
Sum	10.9	3.9	3.2	6.7	0.7	0	323.7	242.1	1,054.2	906.5	18.3	3.2
Current Year 1985									Period 1936-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	5.27	4.62	26	6.9	13	0.1	0.4	21.6	35.7	451	0	
Feb.	4.72	4.65	1	.3	111	.1	.1	7.7	18.1	132	0	
Mar.	4.69	4.58	24	.2	11	.1	.1	6.3	25.2	295	0	
Apr.	5.55	4.44	28	13.9	118	0	.2	13.3	17.4	173	0	
May	4.66	4.34	1	.2	17	0	0	1.4	12.6	138	0	
June	4.34	4.34		0		0	0	0	118	1,590	0	
July	7.63	4.34	31	333	11	0	10.4	642	1,881	8,110	0	
Aug.	7.63	4.37	1	333	126	0	7.8	480	2,892	14,480	0	
Sept.	10.13	4.34	29	1,420	11	0	35.1	2,091	727	3,170	0	
Oct.	8.28	4.75	17	533	14	.1	29.2	1,798	371	6,103	0	
Nov.	5.38	4.80	27	16.8	114	.1	.6	36.3	33.9	352	0	
Dec.	4.96	4.80	2	.3	11	.1	.1	6.3	108	2,363	0	
Yearly	10.13	4.34		1,420		0	7.1	5,104	6,240	22,321	235	
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	3.09	1.32		40.2		0	0.20	6,296	7,697	27,533	290	

! And other days

SEWAGE INFLUENT, DOUGLAS, ARIZONA INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Parshall flume in the influent line of the older trickling filter unit and a Parshall flume in the influent line of the newer extended aeration unit. The treatment plant is located about one mile (1.6 km) west of the Douglas-Agua Prieta Port of Entry immediately adjacent to the international boundary in Douglas, Cochise County, Arizona.

RECORDS: Continuous monthly records since March 1948; daily records from March 18, 1948 through 1950 and from January 1952 through 1985.

REMARKS: The older 1.3 mgd trickling filter unit was constructed in 1947 by the International Boundary and Water Commission. Since April 8, 1968 all sewage from Agua Prieta has been retained in Mexico to be used for irrigation along with the effluent from the Douglas International Treatment Plant. On July 1, 1973, ownership and operation of the plant was transferred from the International Boundary and Water Commission to the city of Douglas. In 1980 the plant was enlarged, with the addition of the extended aeration unit bringing the total capacity up to 2.6 mgd. The effluent from the Douglas Treatment Plant is discharged through a closed conduit to Mexico.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1985			Period 1952-1985		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	39.258	0	39.258	1.441	1.135	1.267	2.157	0.416	1.084
Feb.	35.880	0	35.880	1.460	1.080	1.282	1.784	.543	1.088
Mar.	39.900	0	39.900	1.739	.861	1.287	1.932	.590	1.088
Apr.	39.736	0	39.736	1.473	1.177	1.324	2.047	.380	1.091
May	41.997	0	41.997	1.470	1.205	1.354	1.850	.510	1.094
June	41.134	0	41.134	1.686	1.019	1.372	2.060	.555	1.148
July	42.339	0	42.339	2.089	.702	1.366	3.209	.483	1.199
Aug.	41.800	0	41.800	1.571	1.139	1.348	2.681	.365	1.216
Sept.	41.180	0	41.180	1.536	1.174	1.373	1.904	.470	1.171
Oct.	42.142	0	42.142	1.644	1.147	1.360	1.945	.603	1.133
Nov.	40.523	0	40.523	1.670	1.068	1.351	1.670	.587	1.111
Dec.	42.090	0	42.090	1.559	1.215	1.358	3.330	.500	1.108
Yearly	487.979	0	487.979	2.089	0.702	1.337	3.330	0.365	1.128

SEWAGE INFLUENT, AGUA PRIETA, SONORA INTERNATIONAL OXIDATION PONDS

DESCRIPTION: Parshall flume equipped with staff gage in influent line to oxidation ponds. Since April 8, 1968, all sewage from Agua Prieta, Sonora has been diverted to oxidation ponds, which are located in Mexico; if necessary, sewage from Douglas, Arizona may be included, but this has never been done.

RECORDS: Discharges are computed from daily 11:00 a.m. readings of the staff gage by applying an index for that hour, determined from 7 days of hourly measurements from which the relationship between mean daily readings and 11:00 a.m. readings was developed. Records available: Mean daily flows from April 8, 1968 through 1984. During 1985 the oxidation ponds were not used due to breaks in the conveyance line of the siphon under Whitewater Draw.

REMARKS: The construction of the international oxidation ponds in Agua Prieta, Sonora was completed in April 1968 by the government of Mexico, fulfilling an international agreement to solve the problem of insufficient capacity at the international treatment plant in Douglas, where the combined flows from Douglas and Agua Prieta were treated. If necessary, sewage from Agua Prieta may be treated in this plant, but since the completion of the oxidation ponds, this has never been done. The ponds are located 1.6 miles (2.6 km) south of international monument 85a.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1983			Period 1968-1983		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	18.370	18.370	0.630	0.436	0.593	0.640	0.394	0.515
Feb.	0	17.450	17.450	.630	.568	.623	.726	.394	.525
Mar.	0	19.278	19.278	.630	.568	.622	.666	.394	.514
Apr.	0	18.587	18.587	.630	.568	.619	.666	.394	.521
May	0	19.422	19.422	.691	.568	.627	.691	.394	.538
June	0	19.203	19.203	.671	.630	.640	.671	.394	.543
July	0	19.690	19.690	.671	.568	.635	.691	.259	.539
Aug.	0	19.162	19.162	.691	.568	.639	.967	0	.527
Sept.	0	0	0	0	0	0	.630	0	.504
Oct.	0	0	0	0	0	0	.630	0	.477
Nov.	0	0	0	0	0	0	.717	0	.495
Dec.	0	0	0	0	0	0	.709	0	.487
Yearly	0	151.162	151.162	0.691	0	0.416	0.967	0	0.516

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1984			Period 1968-1984		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	0	0	0	0	0	0	0.640	0	0.483
Feb.	0	0	0	0	0	0	.726	0	.492
Mar.	0	0	0	0	0	0	.666	0	.482
Apr.	0	0	0	0	0	0	.666	0	.489
May	0	0	0	0	0	0	.691	0	.502
June	0	0	0	0	0	0	.671	0	.509
July	0	19.484	19.484	.691	.568	.628	.691	.259	.545
Aug.	0	19.279	19.279	.691	.568	.622	.967	0	.533
Sept.	0	18.404	18.404	.691	.568	.613	.691	0	.511
Oct.	0	14.794	14.794	.630	.418	.477	.630	0	.477
Nov.	0	15.464	15.464	.568	.436	.515	.717	0	.496
Dec.	0	15.525	15.525	.568	.399	.501	.709	0	.488
Yearly	0	102.949	102.949	0.691	0	0.280	0.967	0	0.501

SAN PEDRO RIVER AT PALOMINAS, ARIZONA

DESCRIPTION: Water-stage recorder located near left bank on downstream side of the bridge pier at Highway 92, 0.7 mile (1.1 km) east of Palominas, 2.5 miles (4.0 km) upstream from Green Brush Draw, 4.5 miles (7.2 km) downstream from international boundary, and 12 miles (19 km) southwest of Bisbee, Arizona. Zero of gage is 4,187.62 feet (1,276.39 m) above mean sea level (State Highway bench mark).

RECORDS: Based on current meter measurements or observations of no flow during the year. Records available: May 1930 to October 1933, May 1935 to July 1941, and July 1950 through 1985. Records obtained and furnished by U. S. Geological Survey to September 30, 1981; thereafter by the United States Section of the Commission.

REMARKS: There are some small diversions for irrigation of a few hundred acres above this station, mostly in Mexico. Record shows approximate flow of river at international boundary.

EXTREMES: Maximum daily discharge, 22,000 second-feet (623 m³/sec) on August 14, 1940 (gage height 16.16 feet (4.93 m) present datum), from rating curve extended above 5,600 second-feet (159 m³/sec) on basis of slope-area measurement of peak flow; no flow at times in most years. Greatest flood known occurred on September 28, 1926 (gage height, about 23.9 feet (7.28 m) present datum, from flood marks; discharge not determined.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	105	107	53.8	22.2	15.5	0.4	0.5	12.8	1.9	16.9	10.1	23.3
2	100	90.2	51.5	19.1	14.4	.3	.5	17.6	1.2	23.0	10.7	23.3
3	91.2	81.3	47.3	20.0	10.7	.1	.1	20.0	1.0	11.1	10.4	22.2
4	88.3	80.8	46.8	19.2	9.4	.2	.1	13.6	1.0	8.1	10.1	20.0
5	92.1	84.2	44.0	17.6	8.8	.2	.5	11.4	1.0	6.2	8.9	18.4
6	90.2	91.1	44.0	17.6	8.1	0	4.3	10.1	1.0	4.7	7.3	17.6
7	88.3	109	41.4	18.3	8.1	0	106	9.4	1.0	4.3	7.4	16.8
8	86.4	106	40.1	16.8	7.4	0	41.6	132	1.0	138	8.1	16.5
9	82.6	93.3	39.4	15.2	6.8	0	15.2	63.1	1.0	70.3	7.2	15.2
10	82.6	86.4	41.4	13.6	6.2	0	6.8	31.0	.9	53.9	7.4	14.4
11	78.8	81.4	40.1	15.2	5.1	.1	4.3	25.5	.9	25.5	7.4	14.4
12	75.0	77.4	34.9	13.1	5.5	.5	1.9	180	.8	17.6	6.8	14.9
13	71.6	66.2	30.3	12.0	5.1	1.4	1.5	188	.6	15.2	7.4	12.8
14	73.3	62.3	32.3	12.4	5.1	2.2	2.0	84.5	.4	14.4	7.8	13.8
15	71.6	62.0	31.0	11.8	5.1	1.8	389	49.6	.4	12.8	7.5	13.6
16	71.6	61.6	31.0	11.4	4.7	2.7	74.6	18.7	.3	85.6	6.8	13.6
17	66.5	61.2	28.8	10.7	4.7	3.9	54.8	12.7	.3	719	6.9	12.8
18	61.4	57.4	32.3	10.1	4.3	1.3	175	8.3	27.9	113	6.8	13.6
19	58.0	55.4	29.9	10.1	3.9	1.4	184	6.8	53.3	59.7	6.2	12.8
20	55.1	53.3	32.3	10.1	3.9	1.2	98.3	5.4	7.2	41.4	6.2	12.8
21	50.7	53.0	32.3	10.1	3.5	.9	33.3	4.7	3.9	31.2	7.4	12.0
22	49.6	59.5	28.8	10.1	3.4	.7	20.3	3.8	2.6	25.5	7.4	12.0
23	51.0	62.9	23.3	9.4	3.5	.4	61.8	3.1	1.9	21.1	7.1	12.0
24	63.8	66.5	22.2	8.8	2.3	.3	21.5	1.7	1.6	19.2	8.3	12.8
25	112	63.1	23.6	9.4	1.5	.4	17.2	32.6	.9	16.8	12.3	12.3
26	131	58.0	19.2	9.4	1.4	.2	9.4	7.4	.4	16.0	26.8	11.9
27	482	55.2	19.2	13.1	1.2	.1	6.2	25.9	.2	15.8	49.0	11.4
28	322	56.1	20.4	34.9	1.0	0	46.1	7.2	1,270	13.3	37.5	11.4
29	220	19.7	23.8	.8	.8	.2	17.8	3.9	426	11.4	27.7	12.0
30	158	19.3	18.4	.8	.8	.8	16.0	2.7	35.8	10.7	23.3	11.7
31	125	23.3			.6		52.4	2.3		11.1		11.4

Sum	3,354.7	2,041.8	1,023.9	443.9	162.8	21.7	1,463.0	995.8	1,846.4	1,632.8	364.2	453.7
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Current Year 1985								Period 1951-1985			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.	4.96	2.89	27	665	21	45.4	108	6,654	1,648	27,763	2.6
Feb.	3.85	3.17	7	202	21	53.0	72.9	4,050	817	6,764	3.0
Mar.	3.76	3.45	1	56.6	126	18.4	33.0	2,031	739	7,401	13.3
Apr.	3.82	3.37	28	55.2	24	7.4	14.8	880	178	1,039	0
May	3.51	3.18	1	16.8	129	0	5.3	323	68.0	407	0
June	3.47	3.16	17	7.4	1	0	.7	43.0	158	1,391	0
July	7.25	3.26	15	1,740	1	0	47.2	2,902	5,535	17,238	184
Aug.	4.44	3.25	12	226	24	1.0	32.1	1,975	8,547	36,369	165
Sept.	11.00	2.59	28	5,720	27	0	61.5	3,662	1,947	16,344	11.3
Oct.	8.07	2.13	17	2,430	7	3.9	52.7	3,239	2,071	47,322	0
Nov.	2.96	2.40	27	61.4	18	5.1	12.1	722	271	2,563	0
Dec.	2.72	2.61	1	26.6	31	7.4	14.6	900	1,807	25,479	6.2
	11.00	2.13		5,720		0	37.8	27,381	23,786	62,788	4,400
Yearly	Meters		Cubic Meters per Second				Thousands of Cubic Meters				
	3.35	0.65		162		0	1.07	33,774	29,340	77,448	5,427

* Partly estimated

* Estimated

! And other days

SANTA CRUZ RIVER NEAR LOCHIEL, ARIZONA

DESCRIPTION: Water-stage recorder located in the United States near left bank on the downstream side of concrete bridge pier of county highway bridge, 2.5 miles (4.0 km) northeast of Lochiel, Arizona, and 1.7 miles (2.7 km) upstream from the international land boundary. The elevation of the zero of the gage has not been determined, but topographic maps indicate the elevation of the stream bed at the gage is about 4,620 feet (1,408 m).

RECORDS: Based on current meter measurements or observations of no flow during the year. Records obtained and furnished by the U. S. Geological Survey. Records available: January 1949 through 1985.

REMARKS: There are small diversions by ground water pumping for irrigating about 200 acres (80.9 ha) above this station.

EXTREMES: Maximum discharge, 12,800 second-feet (362 m³/sec) on August 15, 1984 (gage height 10.47 feet) (3.19 m); minimum discharge, no flow for several days of many years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	23	20	13	6.9	3.9	1.7	1.1	2.1	3.4	1.5	1.2	1.7
2	23	21	13	6.8	3.9	1.7	1.1	3.1	3.1	1.5	1.2	1.6
3	22	21	12	6.8	3.7	1.7	1.1	6.1	2.8	1.3	1.2	1.6
4	22	22	12	6.6	3.6	1.8	1.1	6.0	2.6	1.3	1.2	1.5
5	22	24	12	6.4	3.6	1.9	1.1	3.3	2.4	1.3	1.2	1.5
6	20	24	11	6.2	3.5	1.8	1.2	3.4	2.3	1.2	1.2	1.5
7	20	20	11	6.0	3.5	1.8	1.2	8.4	2.0	1.2	1.2	1.6
8	21	19	11	5.8	3.7	1.8	1.1	6.6	1.9	1.4	1.2	1.6
9	20	19	11	5.7	3.6	1.7	1.2	4.6	1.8	1.4	1.2	1.6
10	20	19	11	5.8	3.4	1.6	1.2	4.9	1.7	1.3	1.3	1.5
11	20	18	10	5.6	3.4	1.6	1.2	21.0	1.8	1.4	1.3	1.6
12	20	18	10	5.5	3.4	1.6	1.2	5.3	1.9	1.3	1.3	1.7
13	20	18	10	5.3	3.2	1.5	1.3	4.8	1.7	1.3	1.4	1.6
14	20	18	9.9	5.2	3.1	1.6	1.4	4.5	1.5	1.3	1.3	1.5
15	20	19	9.8	5.1	2.9	1.6	1.3	4.5	1.5	1.2	1.3	1.5
16	20	19	9.6	4.9	2.7	1.5	1.3	4.6	1.4	3.5	1.3	1.5
17	19	18	9.4	4.7	2.6	1.5	1.3	4.6	1.4	2.8	1.4	1.5
18	19	18	9.3	4.6	2.2	1.4	1.4	4.8	4.2	1.7	1.5	1.5
19	19	18	9.1	4.5	2.1	1.5	47.0	5.3	2.2	1.5	1.5	1.5
20	18	17	9.0	4.5	2.1	1.5	27.0	5.4	1.7	1.4	1.5	1.5
21	18	17	8.8	4.5	2.1	1.7	37.0	8.4	1.5	1.4	1.5	1.5
22	18	16	8.7	4.4	2.1	1.4	11.0	5.1	1.5	1.3	1.5	1.5
23	19	14	8.4	4.2	2.1	1.3	4.8	5.2	1.4	1.3	1.5	1.5
24	34	14	8.3	4.2	2.1	1.3	2.1	4.9	1.3	1.2	1.6	1.5
25	23	13	8.2	4.0	2.1	1.2	1.8	4.6	1.3	1.2	1.7	1.5
26	96	13	7.9	4.0	2.0	1.2	1.7	7.4	1.3	1.2	2.9	1.5
27	81	14	7.7	4.8	1.9	1.2	1.9	4.6	1.2	1.2	1.8	1.5
28	30	13	7.5	4.5	1.9	1.2	2.2	5.0	10.0	1.2	1.7	1.5
29	23		7.6	4.0	1.9	1.2	2.1	4.3	2.3	1.2	1.6	1.5
30	20		7.3	4.0	1.8	1.2	2.0	4.0	1.5	1.2	1.9	1.5
31	20		7.2		1.8		2.1	3.7		1.2		1.5
Sum	790	504.0	300.7	155.5	85.9	45.7	164.5	170.5	66.6	44.4	43.6	47.6
Current Year 1985									Period 1949-1985			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Average	Maximum	Minimum		
Jan.	3.92	2.15	26	316	118	18.0	25.5	1,567	170	2,895	1.3	
Feb.	2.22	2.01	6	29.0	124	13.0	18.0	1,000	95.2	1,000	1.8	
Mar.	2.03	1.91	1	13.0	130	7.0	9.7	596	119	2,103	0.7	
Apr.	1.92	1.84	1	7.2	126	3.8	5.2	308	43.3	308	0	
May	1.86	1.75	1	4.1	31	1.7	2.8	170	22.4	170	0	
June	1.86	1.72	21	2.1	128	1.1	1.5	90.6	17.1	169	0	
July	5.05	1.70	19	794	1	2	5.3	326	558	4,270	1.6	
Aug.	3.98	1.52	11	335	2	1.8	5.5	338	1,117	11,518	0.08	
Sept.	2.35	1.43	28	42.0	27	1.1	2.2	132	337	2,634	0	
Oct.	2.04	1.45	16	13.0	1	1.2	1.4	88.1	338	4,732	0	
Nov.	1.71	1.45	26	4.1	1	1.2	1.4	86.5	64.5	403	0	
Dec.	1.52	1.49	1	1.8	112	1.5	1.5	94.4	118	1,093	0	
Yearly	5.05	1.43		794		1.0	6.6	4,797	3,000	17,376	126	
	Meters		Cubic Meters per Second				Thousands of Cubic Meters					
	1.54	0.44		22.5		0.03	0.19	5,917	3,700	21,433	155	

1 And other days

SANTA CRUZ RIVER NEAR NOGALES, ARIZONA

DESCRIPTION: Water-stage recorder, cable with sit-down cable car located 5.5 miles (8.9 km) east of Nogales, Arizona, 0.8 mile (1.3 km) downstream from the international boundary and 6 miles (9.7 km) upstream from the Santa Cruz bridge on State Highway No. 82. Zero of gage is 3,702.54 feet (1,128.53 m) above mean sea level, U. S. C. & G. S. datum (levels by International Boundary and Water Commission).

RECORDS: Based on current meter measurements or observation of no flow during the year. Records obtained and furnished by the U. S. Geological Survey. Records available: March to November 1907 and April 1909 to December 1912 (discharge measurements and fragmentary gage height record); January 1913 to June 1922 (October 1915 to September 1916, monthly discharges only); May 1930 to December 1933; and July 1935 through 1985.

REMARKS: Diversions in both countries affect the flow at this station. The major diversions occur in Mexico for domestic and irrigation uses. There are no storage dams above the station as of December 1984.

EXTREMES: Maximum discharge, 33,500 second-feet (949 m³/sec) on October 9, 1977 (gage height 15.5 feet) (4.72 m); minimum discharge, no flow for several days of many years.

Mean Daily Discharge in Second-Feet 1985 — Annual and Period Summary

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	300	116	110	53	36	5.2	1.2	97	9.7	14	20	72
2	250	101	106	51	33	4.9	1.2	48	6.1	12	19	49
3	200	185	104	50	30	4.7	1.3	44	5.8	10	19	35
4	175	419	102	50	28	4.5	1.3	38	4.9	11	19	32
5	150	1,730	101	49	27	4.0	1.3	34	3.7	9.4	18	29
6	150	1,460	102	51	25	4.0	2.0	23	2.6	8.3	16	27
7	122	1,160	99	53	24	3.6	1.8	32	2.6	7.9	15	26
8	110	856	93	48	23	3.5	1.2	40	2.6	11	15	24
9	110	568	86	46	22	3.2	1.2	20	2.6	10	15	24
10	105	554	84	46	20	2.9	1.2	15	2.6	13	16	23
11	107	343	81	46	19	2.8	1.3	15	3.4	12	16	24
12	119	302	78	46	18	2.6	1.1	35	3.3	8.3	17	27
13	134	298	75	45	16	2.6	4.9	249	3.7	6.6	17	24
14	122	233	72	43	15	2.4	7.2	61	2.6	6.6	16	23
15	126	175	69	44	13	2.2	12	50	2.6	6.5	14	23
16	121	155	67	43	13	2.1	3.5	35	2.6	13	14	23
17	141	146	66	43	12	2.0	13	25	2.6	97	14	22
18	140	139	65	44	11	1.9	178	20	13	60	14	21
19	135	123	66	42	10	1.9	103	15	11	35	13	21
20	134	113	65	42	9.0	1.9	102	10	5.3	30	13	21
21	125	123	62	43	7.9	1.8	58	7.0	4.5	26	13	21
22	127	248	61	43	7.6	1.7	68	7.5	4.2	29	13	21
23	120	194	58	43	7.4	1.6	82	10	4.2	30	13	21
24	911	129	56	42	7.5	1.6	42	9.2	3.7	29	14	21
25	1,000	139	54	41	7.2	1.6	30	7.6	3.0	24	18	22
26	1,970	120	52	42	6.9	1.6	27	15	3.0	21	135	22
27	3,050	117	52	45	6.7	1.5	26	15	3.2	20	59	22
28	1,220	113	53	45	6.2	1.4	32	11	31	19	35	22
29	602		55	42	5.7	1.4	31	5.3	42	19	30	22
30	269		52	38	5.5	1.4	28	5.3	18	18	33	22
31	258		52		5.2		38	27		18		21
Sum	12,603	10,359	2,298	1,359	477.8	78.5	901.7	1,025.9	210.1	634.6	683	807
Current Year 1985									Period 1936-1985			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			27	3,050	10	105	407	24,998	2,244	30,282		0
Feb.			5	1,730	2	101	370	20,547	1,759	20,547		0
Mar.			1	110	126	52	74.1	4,558	1,482	19,575		0
Apr.			1	53	30	38	45.3	2,696	393	2,955		0
May			1	36	31	5.2	15.4	948	122	1,031		0
June			1	5.2	128	1.4	2.6	156	91.3	1,449		0
July			18	178	12	1.1	29.1	1,788	2,815	15,610		45
Aug.			13	249	129	5.3	33.1	2,035	5,869	45,790		91
Sept.			29	42	6	2.6	7.0	417	1,550	9,431		0
Oct.			17	97	15	6.5	20.5	1,259	2,002	59,025		0
Nov.			26	135	119	13	22.8	1,355	555	7,384		0
Dec.			1	72	118	21	26.0	1,601	2,671	33,568		0
Yearly				3,050		1.1	86.1	62,358	21,553	87,615		2,234
	Meters		Cubic Meters per Second					Thousands of Cubic Meters				
				86.4		0.03	2.44	76,917	26,585	108,072		2,756

g Mean daily

1 And other days

SEWAGE INFLUENT, NOGALES INTERNATIONAL TREATMENT PLANT

DESCRIPTION: Three 24-inch (61.0 cm) Parshall flumes, each with a water-stage recorder and continuous totalizer, one located at the international boundary for measuring effluent from Nogales, Sonora, one located at the head of the treatment plant, and one in the plant effluent line. Nogales International Treatment Plant is located adjacent to I-19, approximately 9 miles (14.5 km) north of the international boundary, all within the city of Nogales, Santa Cruz County, Arizona.

RECORDS: Flows from the United States are deduced from total plant influent less the flows measured crossing the international boundary from Mexico. Records available: Continuous monthly record for plant influent since August 1951; daily records for plant influent, January 1952 through 1985.

REMARKS: Prior to December 18, 1971 the plant was located along the right bank of Nogales Wash, approximately two miles (3.2 km) north of the international boundary. Nogales International Treatment Plant treats combined sewage from both Nogales, Arizona and Nogales, Sonora by means of aerated stabilization lagoons with a capacity of 8.2 mgd. Chlorinated plant effluent is discharged directly to the Santa Cruz River.

Month	Total Monthly Flows			Mean Daily Flows-Millions of Gallons Per Day					
	Millions of Gallons			Current Year 1985			Period 1952-1985		
	U.S.	Mexico	Total	Maximum	Minimum	Mean	Maximum	Minimum	Mean
Jan.	155.620	157.546	313.166	12.455	8.444	10.102	12.455	0.650	3.624
Feb.	150.956	131.446	282.402	11.290	9.094	10.086	13.523	.650	3.748
Mar.	146.464	115.356	261.820	9.251	7.185	8.446	18.861	.750	3.704
Apr.	126.955	124.804	251.759	11.335	7.008	8.392	11.335	.700	3.521
May	110.581	161.882	272.463	9.390	8.450	8.789	9.390	.550	3.362
June	101.875	150.989	252.864	9.006	7.729	8.429	9.006	.700	3.190
July	124.273	167.339	291.612	13.667	7.320	9.407	13.667	.700	3.384
Aug.	141.620	133.957	275.577	11.494	7.805	8.890	13.120	.750	3.709
Sept.	126.071	139.026	265.097	11.020	7.120	8.837	12.312	.800	3.937
Oct.	114.658	157.676	272.334	10.451	7.431	8.785	13.055	.700	3.856
Nov.	108.113	131.894	240.007	9.081	7.203	8.000	10.352	.800	3.734
Dec.	104.426	120.859	225.285	8.528	6.738	7.267	15.605	.350	3.742
Yearly	1,511.612	1,692.774	3,204.386	13.667	6.738	8.786	18.861	0.350	3.626

RAINFALL ON THE SANTA CRUZ RIVER WATERSHED IN INCHES

Tabulated below are the monthly records of rainfall with averages for their periods of record at stations located in Arizona. Two stations are operated and maintained by the United States Section of the Commission and two by the National Weather Service. For location, elevation, period of record, type of gage in use, and the observer, see alphabetical listing of stations on this page.

IN THE UNITED STATES

Month	San Rafael #2, Arizona		Canelo, Arizona		Patagonia, Arizona		Nogales Sanitation Plant 9N, Arizona			
	1985	Average 1973-1985	1985	Average 1930-1985	1985	Average 1930-1985	1985	Average 1953-1985		
Jan.	2.53	1.65	2.39	1.23	2.42	1.28	2.44	1.17		
Feb.	1.33	1.27	.83	1.05	1.64	1.06	1.55	.73		
Mar.	0	1.23	.32	.86	.18	.93	.21	.90		
Apr.	1.05	.52	.95	.35	1.16	.35	2.20	.25		
May	0	.10	.02	.14	0	.17	0	.22		
June	.75	.50	.90	.78	.20	.49	.14	.40		
July	1.78	5.39	3.65	4.21	6.02	4.43	5.13	4.88		
Aug.	5.31	2.99	4.23	4.23	3.55	4.01	2.33	3.80		
Sept.	2.36	2.35	2.86	1.81	2.25	1.84	3.62	1.76		
Oct.	.85	1.39	3.68	1.03	2.40	1.08	2.60	1.37		
Nov.	2.35	1.09	2.27	.82	1.55	.82	.76	.65		
Dec.	.60	1.40	.33	1.39	.44	1.41	.37	1.41		
Yearly	18.91	19.88	22.43	17.90	21.81	17.87	21.35	17.54		

LOCATION OF RAINFALL STATIONS ON THE SANTA CRUZ WATERSHED

The precipitation records of the stations listed alphabetically below begin on the date shown and extend through 1985.

IN THE UNITED STATES

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	OBSERVER
Canelo, Arizona	S	31° 33'	110° 32'	5,010	1930	R. E. Ewing
Nogales Sanitation Plant 9N, Arizona	S	31° 25'	110° 57'	3,560	June 1952	I. B. & W. C.
Patagonia, Arizona	S	31° 33'	110° 45'	4,190	1930	George R. Proctor
San Rafael #2, Arizona	S	31° 22'	110° 38'	4,860	Jan. 1973	I. B. & W. C.

S Standard 8" rain gage

TEMPERATURE, HUMIDITY, EVAPORATION, AND WIND IN THE SANTA CRUZ RIVER BASIN

Tabulated below are monthly records of temperature at the station located at the Nogales Sanitation Plant in Arizona 9 miles (14.5 km) north of the international boundary. On December 18, 1971 the station was moved to correspond with a new Nogales Sanitation Plant. Prior to this date, the station was located 2 miles (3.2 km) north of the international boundary at the old Nogales Sanitation Plant. This station is operated and maintained by the United States Section of the Commission. The equipment at the Nogales Sanitation Plant - 9N consists of a standard 8-inch (203 mm) rain gage and maximum and minimum thermometer.

For specific location of this station, refer to data opposite same station name shown in "Location of Rainfall Stations," page 89 of this bulletin.

IN THE UNITED STATES

TEMPERATURE - DEGREES FAHRENHEIT

Month	Nogales Sanitation Plant - 9N		
	1985		
	Mean	Max.	Min.
Jan.	44.8	72	20
Feb.	46.9	81	14
Mar.	52.7	84	23
Apr.	61.0	90	31
May	66.4	93	31
June	75.3	106	42
July	79.2	104	56
Aug.	* 77.7	107	51
Sept.	69.5	96	44
Oct.	62.5	91	38
Nov.	52.1	83	21
Dec.	47.9	77	20
Yearly	61.3	107	14

MEAN RELATIVE HUMIDITY - PERCENT

Month	Nogales Sanitation Plant - 9N	
	1985	
	Max.	Min.
Jan.	DISCONTINUED	
Feb.		
Mar.		
Apr.		
May		
June		
July		
Aug.		
Sept.		
Oct.		
Nov.		
Dec.		
Yearly		

EVAPORATION - INCHES

Month	Nogales Sanitation Plant - 9N	
	1985	Average 1953-1985
Jan.	DISCONTINUED	
Feb.		
Mar.		
Apr.		
May		
June		
July		
Aug.		
Sept.		
Oct.		
Nov.		
Dec.		
Yearly		

MEAN WIND SPEED - MILES PER HOUR

Month	Nogales Sanitation Plant - 9N	
	1985	Average 1953-1985
Jan.	DISCONTINUED	
Feb.		
Mar.		
Apr.		
May		
June		
July		
Aug.		
Sept.		
Oct.		
Nov.		
Dec.		
Yearly		

* Incomplete record

**DRAINAGE AREAS ABOVE GAGING STATIONS AND IRRIGATED AREAS ALONG
SANTA CRUZ RIVER, SAN PEDRO RIVER, AND WHITEWATER DRAW
1985**

The drainage basin areas tabulated below are derived from the best available maps from both the United States and Mexico.

Data on irrigated areas in the Whitewater Draw Basin were furnished by the Soil Conservation Service at Douglas, Arizona and estimated from aerial photographs.

Designation of Areas	Drainage Basin - Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Santa Cruz River:						
Above Lochiel, Arizona Gaging Station	82	0	82	100	0	100
Above El Cajon, Mexico Gaging Station	179	125	304	100	2,352	2,452
Above Nogales, Arizona Gaging Station	185	348	533	100	2,696	2,796
San Pedro River:						
Above Palominas, Arizona Gaging Station	92	649 *	741	2,500	3,459	5,959
Whitewater Draw:						
Above Douglas, Arizona Gaging Station	1,023	0	1,023	25,000	0	25,000

* An additional 47 square miles in Mexico is tributary to the San Pedro River downstream from this station.